TEXTILE WORLD RECORD

AUGUST, 1912

Monthly Comment.

The Revision of Schedule K

On July 25 in accordance with an agreement reached a few days before, the Senate proceeded to the consideration of the Underwood bill for the revision of the woolen schedule. This bill provided for ad valorem rates as follows:

Wool, waste, shoddy and rags	20%
Tops and roving	25
Yarn	30
Cloths, knit goods and felts	40
Blankets and flannels:	
50 cents or less per pound	30
above 50 cents per pound	45
Dress goods, linings, etc.	45
Clothing	45
Narrow fabrics, laces, etc.	35
Axminster carpets	40
Wilton and velvet carpets	35
Brussels and ingrain carpets	30
Two-ply ingrain carpets	25

After a speech by Senator Simmons, a substitute for the pending measure was offered by Senator Cummins, who stated he had followed the report of the Tariff Board "so far as it presents facts." The rates in the Cummins bill were as follows:

	per scd. lb.
Clothing and worsted wool in grease	18c.
scoured	19
Mohair, camel hair, etc.:	
natural	7
scoured	8
Carpet wool, in grease	5
scoured	6

The duty on clothing and worsted wool shall not exceed 45 per cent. ad valorem; the duty on mohair and camel hair shall not exceed 30 per cent. ad valorem; the duty on carpet wool shall not exceed 40 per cent. ad valorem.

Slubbing waste	20
Garnetted	16
Noils carbonized	14
uncarbonized	11
Yarn waste and shoddy	7
Rags	3

The duty on waste, noils, shoddy and rags is based on the weight as imported and not on the clean "content."

	Duty per Pound and Ad Valorem
Tops:	
less than 20 cents	12c. & 5%
20 to 30 cents	16c. & 5
30 to 40 cents	18c. & 5
40 to 50 cents	20c. & 5
above 50 cents	21c. & 5
Yarn:	
less than 30 cents	14c. & 12
30 to 50 cents	18c. & 15
50 to 80 cents	21c. & 20
over 80 cents	24c. & 25
Cloths, knit goods, etc.:	
less than 30 cents	16c. & 30
30 to 40 cents	18c. & 30
40 to 60 cents	22c. & 35
60 to 80 cents	26c. & 40
80 cents to $1.00	28½c. & 45
$1.00 to $1.50	28½c. & 50
above $1.50	28½c. & 55
Blankets and flannels:	
under 40 cents	18c. & 20
40 to 50 cents	20c. & 25
above 50 cents	23c. & 30
Clothing:	
under 40 cents	20c. & 35
40 to 60 cents	22c. & 40
60 cents to $1.00	26c. & 45
$1.00 to $1.50	28½c. & 50
over $1.50	28½c. & 55
Handmade carpets and rugs	55
All other carpets	25

After discussion by Senators Cummins, Heyburn, Poindexter and others, the Senate

rejected the Cummins substitute by a vote of 57 to 14. Senator Penrose of Pennsylvania, chairman of the Finance Committee, then introduced a bill as a substitute for the pending measure, stating that it had been prepared after many conferences between Senators, manufacturers and wool growers, and that "in the opinion of those who had read the substitute it is absolutely based upon the recommendation of the Tariff Board." The Penrose bill provided for the following rates:

Clothing and worsted wool, mohair and camel hair:
grease, 18 cents per pound clean.
scoured, 20 cents per pound clean.
Carpet wool:
grease, 7 cents per pound grease.
scoured, 19 cents.
A drawback of 99 per cent. is granted for carpet wool used in the manufacture of carpets and rugs.
Slubbing waste, 25 cents per pound.
Garnetted waste, 20 cents per pound.
Noils, carbonized, 14 cents per pound.
not carbonized, 11 cents per pound.
Yarn waste, 9 1/2 cents per pound.
Shoddy, 10 cents per pound.
Rags, 5 cents per pound.
The duty on waste, noils, shoddy and rags is based on the weight as imported and not on the clean "content."
Tops, 28 cents per pound.
Worsted yarn:
ply yarn No. 40, 41 cents per pound.
Nos. 12 to 40, a reduction of 1/4 cent per pound for each number under No. 40.
above No. 40, an addition of 2/5 cent per pound for each number above No. 40.
single worsted, 5 per cent. less than ply.
Carded woolen yarn, single and ply, 7 cents per pound less than worsted yarn.
All yarns if bleached, dyed or printed, 3 cents per pound extra.

Duty per Pound and Ad Valorem

Cloths, knit goods, etc.:	
under 20 cents	12c. & 25%
20 to 30 cents	16c. & 35
30 to 40 cents	20c. & 35
40 to 50 cents	24c. & 45
50 to 60 cents	28c. & 45
60 to 80 cents	32c. & 50
above 80 cents	35c. & 55
Blankets:	
under 30 cents	16c. & 25
30 to 40 cents	18c. & 30
40 to 50 cents	22c. & 30
above 50 cents	26c. & 35
Knit wearing apparel:	
less than 80 cents	24c. & 35
80 cents or more	24c. & 45
Clothing, felts and narrow fabrics	65
Handmade carpets and rugs	50
Other carpeting	30
Dress goods	11c. per sq. yd. & 50
cotton warp	7c. per sq. yd. & 50

After a discussion in which Senators Penrose, Williams, Bacon, Smoot, McCumber and others took part, the Senate agreed by a vote of 34 to 32 to substitute the Penrose bill for the pending measure. Senator Cummins then offered an amendment creating a permanent tariff board, which was agreed to by a vote of 40 to 26. Senator La Follette then offered as a substitute for the bill before the Senate the La Follette bill as passed by the Senate last year. It provides for ad valorem rates as follows:

Clothing and worsted wool	35%
Carpet wool	10
Slubbing waste and garnetted waste	30
Other waste and shoddy	25
Rags	25
Tops	40
Yarns	45
Cloths and knit fabrics	55
Carpets and rugs	35

Senator Lodge then offered as an amendment to the La Follette substitute the bill providing for a permanent tariff board which the Senate had previously accepted, when proposed by Senator Cummins. This time, however, the Senate reversed its action and rejected the Lodge amendment by a vote of 35 to 31. Senator McCumber then offered an amendment repealing the Canadian reciprocity act and providing for a duty of $2.00 per ton on print paper. The Senate rejected the McCumber amendment by a vote of 39 to 27. Then without further debate the La Follette substitute was agreed to by a vote of 40 to 26. Twenty-eight Senators were absent and paired. Counting both those voting and those paired the vote stood 54 in favor of the La Follette bill and 40 opposed.

The House of Representatives rejected the Senate bill a few days later and left it for the Senate to ask for a conference. Last year the two Houses agreed upon what is known as the Underwood-La Follette bill, which provided for the following ad valorem rates:

Wool, mohair, waste, shoddy and by-products	29%
Worsted tops	32
Yarns	35
Cloths, knit fabrics, etc.	49
Blankets and flannels for underwear	38
Axminster, Wilton and velvet carpets and rugs	50
All other carpets	30

The last-named bill was vetoed by the President.

Preference for Foreign Goods

German wool manufacturers continue to complain bitterly because of the preference given to English fabrics by German merchants and consumers. The "Deutsche Wirker-Zeitung" in a recent issue calls attention to the steadily increasing imports of English woolens and to the decline of wool manufacturing in Germany. English wool fabrics are considered to be the garb of German gentlemen and merchants fall in with this idea in order to sell the goods their customers prefer. German imports of wool fabrics from England have increased 50 per cent. since 1907, while the German exports to England show a decrease of nearly 10 per cent. The German press is trying to create a sentiment in favor of wearing German made wool goods as a patriotic duty. To further this movement the Halberstadt Chamber of Commerce calls attention to the practice among retailers in England of appointing certain days on which English goods only will be sold in their stores. The preference of German consumers for foreign products extends to other lines, such as shoes and food products.

Estimating the Cost of Ribbon

The need of a reliable and uniform system of estimating the cost of goods exists in every branch of the textile trade. The lack of such a system has become so plain in the ribbon industry that the Silk Association has taken steps to supply it by establishing a cost estimating department for the use of its members at a moderate fee. The plan is outlined in the following circular letter recently sent to the trade by a committee consisting of Edward Wackerhagen, chairman, Charles Slingland, George I. Sheck, E. A. Soleliac, J. P. Darwent, and Ramsay Peugnet, secretary:

The Committee on Cost Calculations of the Ribbon Manufacturers of the United States, Division E of the Silk Association of America, is now prepared to furnish or check cost calculations for its members for a fee just sufficient to cover the expense involved, to be remitted with the inquiry. Cost sheets for plain goods, made on specific data, will be furnished for a charge of $2.50.

The data to be furnished to the committee should be as follows: Sizes or drammage and classification of raw silk; prices of raw stock; number of threads and twists of organzine and tram; prices for throwing; weighting of organzine and tram; prices for dyeing; reeding; number of ends of organzine per space; number of spaces to loom; width of goods; picks per inch; number of ends in filling; length of warp; prices for winding, warping, twisting, quilling, weaving, picking and cleaning, finishing, blocking, etc.

In case it is not desirable to furnish all this information, the committee will take from the standard average cost sheet such costs as are not supplied. The manufacturer may then modify or revise to suit the special conditions in his mill.

For a calculation on a sample to be dissected and its construction determined, the fee will be $5.00. The figures in this instance will be taken from the standard average cost sheets unless other data is supplied.

Additional cost sheets of other widths of the same quality asked for with the original calculation, will be supplied for $1.50 each.

The manufacturer may instruct the committee in regard to the figures he wishes used for rigging looms and general expenses; otherwise the calculation will be made on the basis of $15.00 for rigging loom (plain goods) and 20 cents per loom hour. Any special or unusual expenses or conditions which would have a bearing on the cost sheet should be indicated.

The charge for cost sheets for fancy goods will depend upon the labor involved in making them.

At this writing it is suggested that ten days be allowed for the making of the cost sheet, but the calculation will be returned as promptly as possible.

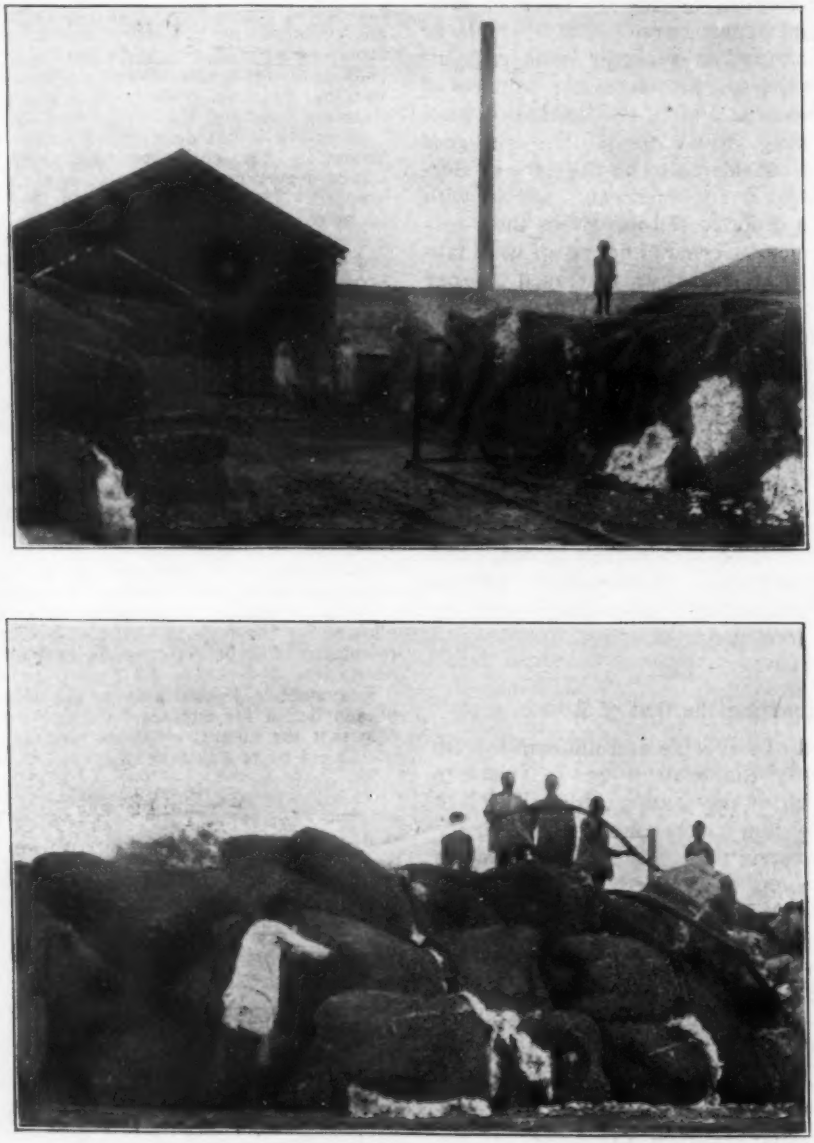
Key number, known only to the secretary, will be supplied if for any reason it is deemed advisable that the identity of those requesting reports should not be revealed.

Trade Customs

Arno Schmidt, secretary of the International Cotton Federation, was overwhelmed with astonishment and indignation during his recent visit to India by the manner in which cotton is watered at the ginneries for the purpose of adding weight and thus increasing the price paid by the buyer. In his report Mr. Schmidt gives this account of the way the water is added:

The most interesting thing from a spinner's point of view which I saw at one of the ginneries in Akola was the artificial watering of cotton. My attention to the watering of the cotton in the Central Provinces and Berar had been directed by various cotton ginners and spinners in different districts throughout India, which is proof that the fraudulent methods are extensive and well known. I must confess that in no other Province have I found such glaring frauds carried on as in Akola; evidently no secret is made of the watering, be-

cause when I asked one of the ginners the reason why the whole of his yard was covered with water pipes, he acknowledged at once that they were ning factory in Akola. No charge is made for this watering, and the owner of one gin told me that the cotton is watered only if the owner re-



TWO VIEWS, SHOWING THE WATERING OF GINNED COTTON AT AKOLA, INDIA.

there in the first instance for the purpose of protecting the cotton against fire, and in the second for the purpose of watering it. I was told that watering in the way depicted in the two accompanying illustrations is done at almost every gin-quests them to do so. There was no hesitation shown when I asked for a demonstration of the manner in which the cotton is watered. About six coolies got a hose-pipe ready—it was almost three inches in diameter, and the nozzle had an

opening of about one inch in diameter—several coolies mounted a heap of about 100 loose bales of ginned cotton, and the water was poured over them just as they would have done had the bales been on fire. The owner of the gin told me that it was customary to water in this manner for 20 minutes a lot of 100 bales. The cotton which had been watered on the previous night was absolutely "wringing wet," and although a certain amount of moisture will evaporate during exposure to the sun and during the process of final pressing, yet it must be evident that any spinner who receives such cotton is a heavy loser.

The Indians should not be judged too harshly. They are following a very common practice in the trade, and their offense only seems more heinous because it is done with such an engaging lack of secrecy or pretense. When Mr. Schmidt was in Egypt he was informed that Egyptian cotton was watered for the benefit of the spinners, as the moisture improved the spinning quality of the fiber, but the Egyptians could give no satisfactory reason for not letting the spinners improve the cotton by adding water and weight. In Lancashire cotton yarn is quite generally conditioned by allowing it to absorb moisture and weight from damp surrounding, and the Lancashire trade show a decided unwillingness to adopt a system of selling cotton yarn by conditioned weight. At one of the meetings of planters and manufacturers held in connection with the Southern cotton excursion in 1907, one planter told of how the planters in his section driving to market with their cotton often stopped a few miles from the market place, learned there of the quotation for cotton, and if in his opinion the gamblers on the cotton exchanges had put the price too low, they proceeded to meet this fraud by driving a drill into the center bale, and after withdrawing it, pouring hot water into the hole. The speaker explained that the cotton absorbed hot water more readily than cold. If water is to be added to cotton the Indian method, free from pretense, is to be preferred to the Egyptian, Lancashire or Southern process, even if the Indian does use a hose. The remedy for the fraud is to be found in the adoption of a standard for moisture in cotton, by which the incentive for adding an excess of water would be eliminated.

Long Staple Cotton in India

The efforts of the British Cotton Growing Association to extend its operations to India have encountered an obstacle in the form of objections from the Bombay Mill Owners' Association, whose members object to the operations of the British Association in the growing and marketing of long staple Indian cotton. The cotton spinners assert that the British Association would divert Indian cotton to Lancashire and thus deprive the Indian mills of the supply of raw material from their own country. In order to head off what they believe would be the beginning of a British monopoly of Indian cotton, a number of mill owners representing about thirty mills at Bombay, have formed the Sind Cotton Growing Syndicate, Ltd., with a capital of $325,000. A ginnery is to be erected at Jacobahad, and the plan is to buy all cotton raised from the American seed supplied to growers by the syndicate. The syndicate is to have government support, which is to take the form of a supply of seed and official control of cultivation by the Agricultural Department. The promoters of the cotton growing syndicate make the very moderate estimate of 250 bales as the size of the first year's crop of long staple Indian cotton. As the Indian cultivators gain experience in the raising of this kind of cotton it is expected that the crop will steadily increase and in a few years supply a considerable addition to the world's supply of long staple cotton. Whatever may be the ultimate outcome of the enterprise, it has already served to bring out sharply the local selfishness and jealousies that are back of the movement to increase the production of British-grown cotton. The Indian cotton spinners favor the work, provided the increase goes to Indian mills. The Lancashire spinners find the mainspring of their enthusiasm in colonial cotton to be in the expectation that the increase will materialize at the doors of Lancashire mills. The mill owners and operatives of Lancashire would lose what little zest they have for the support of the British Cotton Growing Association if the cotton thus obtained were to lose its identity in the world's supply.

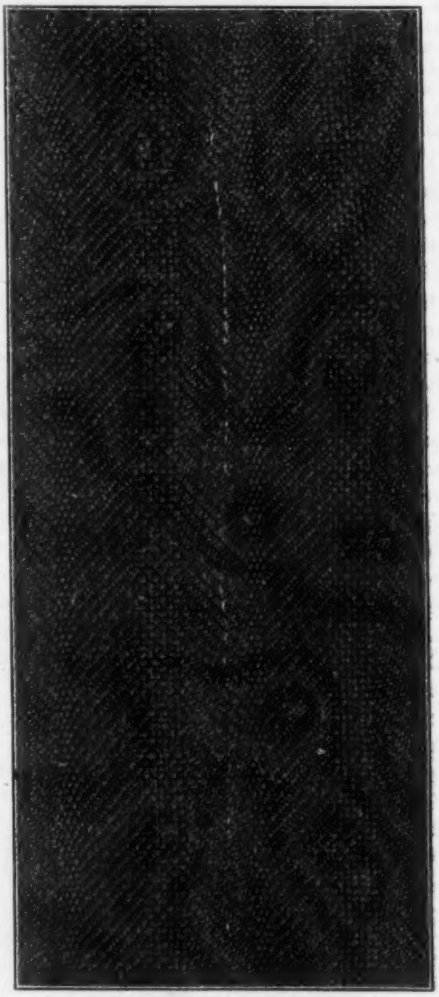
Vegetable Fiber in Wool

The International Committee on Vegetable Fiber in Wool are pushing their work vigorously, and have been greatly encouraged by the cooperation from all branches of the wool and wool goods trade. A few weeks ago the Committee gave a dinner at London to about seventy representatives of the wool trade in England, Australia, South Africa, France, Germany, Japan and the United States. J. E. Fawcett, the president of the Bradford Chamber of Commerce, presided and emphasized his address by following the example set some years ago by this magazine, of visualizing the vegetable fiber nuisance by illustrations of unburled wool cloth containing long vegetable fibers. President Fawcett in his address said:

For many years it has been noticed that there was a great and growing increase in the amount of this most objectionable fault, and about five years ago a committee was formed to investigate and find a remedy. It soon became apparent that one of the chief causes was that the bags used for packing wool were not of the same quality as, say, twenty to thirty years ago. So slowly had this deterioration taken place that it was only over a series of years that it had become noticeable. It was one of the usual effects of the desire for cheapness. What had probably taken place was that the yarn from which the bag was woven was more loosely twisted than formerly. At any rate, it became more easily unraveled. The cost of wages of those employed in taking out the defective pieces was enormous, the process requiring thousands of hands throughout Europe and America. Even then the piece didn't fetch its full price, because it was not always possible to conceal all the weak places. If this fault could be reduced there would be a saving in the cost of production of a vast number of highly-paid operatives, and a better article would be produced.

The real people to benefit would be the grower, or the wearer of the clothes, or both. Personally, I am quite convinced that the grower would largely benefit, but he must not expect to get the full benefit the first year, and when it did come it would be in an imperceptible form. The defect, which in his opinion was costing the grower fabulous sums, was slow in making itself felt, and the grower could not say in what year it took place.

It is a recognized commercial principle that every product should be sent to market in a merchantable form, i. e., in a form in which it was suitable to be used. Also that if these defects should by growers be considered to be exaggerated the contrary can be proved by magnifying the situation. Let it be supposed that instead of trying to remedy these faults it is considered that no harm would be done by increasing them. Suppose for the sake of argument vegetable matter were added it would be apparent to everyone that the value of the wool so treated must go down in price. Why should not the opposite take place



A SISAL FIBER IN THE WARP OF WORSTED CLOTH.

when it was specially free from defects? That we are considering a very serious problem there is no doubt. The great majority of the producers of wool are British subjects and are made of the right stuff to tackle almost any problem. There cannot be the least doubt that when each side tries his hardest to find a way out of the present position on this matter we shall find that what we were once pleased to look upon as difficulties have vanished.

A Test for the Murdock "Pure Textile" Bill.

Every little while some legislator at Washington introduces a bill to require the labeling of textiles to show the materials of which the goods may be composed. In 1901, when Congressman Grosvenor, of Ohio, introduced his shoddy bill in the House of Representatives we took occasion to analyze its provisions and expose its absurdities. That exposure, published in the January, 1902, issue of the Textile World, was instrumental in making the Grosvenor shoddy bill an object of deserved ridicule, and has been reprinted and served a like purpose on various occasions during the past eleven years when "pure textile" bills have been proposed. The latest attempt at legislation of this kind has been recently made by Congressman Victor Murdock, of Kansas. Last December, when his purpose to introduce a "pure textile" bill was announced, we called his attention to the impossibility of distinguishing the different forms of wool when manufactured into goods, and that as a result the "pure textile" proposition as applied to wool goods was impossible. We also sent Mr. Murdock at that time the 1902 exposure of the Grosvenor bill and our translation of the article, "Shoddy or Wool," by Leo Pinagel, director of the Conditioning House and chairman of the Textile Commission for the Textile Industry at Aachen, Germany, published in our July, 1910, issue, and in which that German expert summed up his conclusions in these words:

> There is only one reliable method to determine whether shoddy has or has not been used in the manufacture of a fabric, namely, the production of the spinners' lot books and the sworn testimony of the persons who made the record. In this way it is possible for the manufacturers to obtain justice and for the government to make sure of a delivery according to specifications.

Of course it required no expert testimony to show the absurdity of the "pure textile" proposition, but neither this fact nor the evidence we submitted was sufficient to turn the Kansas statesman from his purpose, and on July 10 he introduced in the House a bill for labeling textile fabrics and clothing, differing in minor particulars from the old Grosvenor bill, but just as impossible of administration. As self-evident facts and expert testimony had not prevented Mr. Murdock from promoting his "pure textile" measure we decided to try another method and to suggest that he submit his bill to the acid test by getting either the chemists in the Bureau of Agriculture or other competent chemists to test a number of samples of wool goods to determine their "purity" as defined by the Murdock bill. Our suggestion was made to Mr. Murdock in the following letter:

July 26, 1912.

Hon. Victor Murdock,
Washington, D. C.

My Dear Sir:—I have examined the copy of your bill (H. R. 25685) for labeling and tagging textile fabrics, and desire to offer a suggestion in regard to it. The bill in many respects is identical with the one introduced in the House by Congressman Grosvenor in 1902. Like its prototype it contains provisions that are impossible of administration, however desirable their enforcement might be. For example your bill provides:

"Sec. 9. That all woolen goods which are composed of pure wool shall be marked, tagged, or labeled in plain letters 'pure wool;' and that all fabrics and articles composed in part of pure wool and in part of mungo, shoddy, or extract shall be marked, tagged, or labeled in plain letters 'mixed goods;' and the mark, tag, or label shall show the proportion of pure wool, mungo, shoddy, and extract contained therein; and that all fabrics and articles composed in part of pure wool and in part of cotton, or in part of shoddy and mungo and in part of cotton, or in part of linen, or in part of silk, shall be marked, tagged, or labeled in plain letters 'mixed goods;' and the mark, tag, or label shall show the proportion of each of the constituent fibers or other materials or substances of which such goods are composed."

Mungo, shoddy and extract are different forms of what you term "pure wool." The wool known as mungo," "shoddy" or "extract" is as "pure" as the wool that comes from the sheep's back. Wool in any of these forms exhibit the same chemical reactions. All are dissolved by caustic alkalis and char in the same manner when burned. No expert knowledge is required to recognize these conditions and the resulting fact that when the wool fibers you call "pure" are mixed with wool fibers known commercially as "mungo," "shoddy," or "extract," it is impossible to distinguish one from the other for the purpose of administering such a bill as the one you have introduced. What you propose in regard to wool would be as im-

practicable as would a proposition to require copper wire to be labeled and tagged to show the proportion of copper direct from the mine and of copper that had previously been used and afterwards scrapped and remanufactured into the wire to be tagged. I cite the case of copper only for the purpose of illustrating the impossibility of your legislative proposition. I admit that as far as the desirability of legislation is concerned wool and copper do not supply parallel cases, because remanufacture has not injured the old metal, whereas remanufacture certainly does injure the wool fiber. But even if the proportions of the different forms of wool in a fabric could be determined, your bill would come in conflict with the fact that many grades of wool you call "pure" are decidedly inferior to much of the wool known as "mungo," "shoddy" and "extract."

Then there is your definition of "pure wool," which limits the legal stamp of purity to fibers grown on sheep, withholding it from fibers grown on goats, camels, the alpaca and other like animals:

"Sec. 6. That the term 'pure wool' as used in this Act shall be understood to mean sheep's wool which has not been previously used in the manufacture of any other article, goods, or fabric, and the words 'woolen goods' shall be held to mean goods or fabrics composed wholly of such wool."

On what principle of political economy or common sense is this discrimination against the hair of the goat, the camel and the alpaca based? And by what method can these fibers be distinguished from legally "pure wool" when mixed in a fabric?

These and many of the other objectionable and impracticable provisions of your bill were exposed in my comment on the Grosvenor shoddy bill in the article from the Textile World of January, 1902, a copy of which I mailed to you last December when your plans for a "pure textile" law were first made public. I shall not, therefore, take the time now to restate the objections and absurdities, but will come at once to the suggestion which I desire to offer. I have confidence that you are proposing your bill in good faith, and that you are convinced it is necessary for the protection of the purchasers of wool goods. And I am also confident that you would abandon the measure if you should discover that it was impracticable and absurd. Accordingly I want to suggest that you have tests made of various fabrics under your own direction to determine their purity as defined in your bill, section 4 of which provides:

"Sec. 4. That the examination of specimens of fabrics shall be made in the Bureau of Chemistry of the Department of Agriculture, or under the direction and supervision of such bureau, for the purpose of determining from such examination whether such fabrics are misbranded within the meaning of this Act."

I suggest that you obtain a collection of samples made of mixtures of sheep's wool, mohair, camel hair, alpaca, silk noils, mungo, shoddy and extract, submit them with a copy of your bill to the Bureau of Chemistry and request a report on the proportions of these materials in each sample. I suggest that you select for the test as many samples as possible whose composition is known to you personally in advance of the tests. You can obtain samples and such information from woolen and worsted manufacturers. Most of the samples, however, would necessarily be of unknown composition. If you find it impracticable to have your bill tested in this manner by the Bureau of Chemistry of the Department of Agriculture, you can have the work done by chemists of high standing, not connected with the government.

I make this suggestion because the results of such a test would be conclusive as regards the wisdom of the measure you have introduced in the House of Representatives. If it should prove that chemists can determine whether wool goods are tagged in accordance with your bill, then you would be supplied with a convincing argument in favor of its enactment into law. If, however, the test should, as I am confident it will, prove that your bill is absurdly impossible of administration, a lot of valuable time, otherwise wasted in fruitless discussion, would be saved, and you could proceed at once to the framing of a practicable bill that would provide needed protection to the consumers of textiles against being deceived in the purchase of textiles by reason either of their own ignorance or the acts of the sellers. The fairness and reasonableness of my suggestion seem to me beyond question and I hope for a favorable response from you.

Anticipating that you will be convinced of the futility of your bill I want to call your attention to the British law for the protection of buyers of goods, a printed account of which you will find enclosed. Experience is a good school and a dear one only when we insist on having our own school. It is just as good and free of cost when we have the sense and the will to profit by the experience of others. Our English correspondent has given a very good account of the operation of the British Merchandise Marks Act, which forbids a seller to mislead a purchaser, but does not require the seller to conform to absurd and impossible requirements. You can undoubtedly obtain a copy of the British law in Washington, and you can obtain additional in-

formation regarding the operation of the law, either through the American consuls or by personal investigation on British soil.

Yours very truly,

Samuel S. Dale,
Editor.

Mr. Murdock cannot fail to recognize the fairness and conclusive character of the test we suggest nor the mark of our confidence in the good faith in which he has proposed his "pure textile" bill.

The 1912 Directory is Issued

The Official American Textile Directory for 1912-13, compiled by the Textile World Record, has been issued. It is published in three editions, viz., the Office Edition, the Travelers' Edition in flexible covers and the Vest Pocket Editions in three sections, one section including the New England States and Canada, another section the Middle Atlantic States and a third section including the Southern and Western States. Full details concerning these valuable directories will be found under the head of New Publications, in another part of this magazine.

RULES FOR TRADING IN BROAD SILKS

In order to place the trade in broad silks on a better basis and correct the abuses that have grown up in this branch of the silk industry, the broad silk section of the Silk Association has adopted the following set of rules for governing transactions between buyers and sellers:

Rule One

Selling Terms — Selling Terms shall be six per cent. ten days, sixty days dating.

This means that bills are due and payable at the office of the seller, less a discount of six per cent., in seventy days from the date of the invoice, the buyer having the privilege of anticipating the sixty days at the rate of six per cent. per annum within ten days from date of invoice (which ten days are not discountable).

Rule Two

Overdue Bills — Overdue Bills shall be paid upon the basis of a reduction in rate of discount, from the rate of six per cent. stated above, of one per cent. for each thirty days or fraction thereof beyond sixty days from date of invoice, and having become due net, shall be subject to an interest charge of six per cent. per annum.

Rule Three

Cancellations — Orders shall be cancelled only because of a failure to deliver in accordance with contract.

Rule Four

Relief from Obligation to Deliver — Seller shall not be held liable because of late or non-delivery due to strikes, fires or other causes beyond his control.

Rule Five

What Constitutes Delivery — The acceptance of shipment by a railroad or other common carrier shall constitute a delivery.

Shipment made within two weeks after specified date of delivery shall constitute good delivery.

Deliveries contracted for several months (for instance June, July, August), if not otherwise specially arranged, shall be deemed good deliveries only if made in equal parts for each month mentioned on contract (one-third June, one-third July, and one-third August). Subsequent offense shall not affect fulfilled part of contract.

Rule Six

Returns and Cancellations — Goods shall not be returned, or allowance made, after ten days from date of receipt by customer, nor after having been cut or otherwise changed from original condition, except for failure to meet accepted requirements of the trade as to wearing properties not ascertainable at the time of purchase or delivery.

Rule Seven

Rebates and Price Readjustments — Discounts or rebates shall not be made or contract price readjusted, except for causes as per these rules.

Rule Eight

Buyer's Credit — The amount of credit to be extended to buyer may be determined at any time by seller.

Rule Nine

Adjustment and Arbitration of Disputes — Disputes between seller and buyer arising from contracts based on these rules shall be submitted to the Bureau of Adjustment and Complaints, Division D of the Silk Association of America. If an adjustment cannot thus be effected the matter must then be referred to a Committee of Arbitration composed of three members, one to be nominated by the buyer, one by the seller, and these two shall then select the third from the Arbitration Committee of the Silk Association of America. The award shall be final and binding upon both parties.

Note — It is understood that nothing in the foregoing rules shall be construed as waiving the right in individual transactions to make any special or distinct contrary agreement, but that the rules shall govern in cases where no special or specific contract exists to the contrary.

Copies of the rules have been distributed to the broad silk trade, and it is expected that

both buyers and sellers will recognize the mutual advantages of adopting them.

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

The 93d meeting of the National Association of Cotton Manufacturers will be held at the Hotel Griswold, Eastern Point, New London, Conn., on September 9, 10 and 11. Owing to the attractive location a large attendance is expected.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

THAT FIRST OVERSEER'S POSITION

BY COLFAX

(Continued from July.)

The blow room was a very large one and as I stood watching the stock blowing from the pickers I noticed that a large part of the cotton seemed to separate from the heavier wool stock and settle at the far side of the room, thus leaving a good part of the contents of the room practically all cotton while the balance was fairly well blended. I determined to try out quietly my belief that this was the cause of the trouble, and so had the picker stopped. Then I secured a large empty packing case that was handy and seemed to be just the thing to experiment with. I placed this packing case quite close to the mouth of the picker, having removed all stock from the blow room. Then I started the picker and allowed the stock to blow directly into the packing case, making sure that all stock went into the case and did not fly about. There was only 300 lbs. in the lot, so that by a little extra handling it was not very much of a job to get the lot through. To make the test thorough I saw to it that when the stock was being laid down for the second picking that each armful, when carried from the blow room, was spread about quite a bit and not laid in one spot as is often done.

As soon as this lot was on the cards I posted the dyer that a trial lot was on the way and explained to him what my idea was. He was quite enthusiastic in the belief that I was right, and suggested that the superintendent be posted so that he could have the new yarn hurried along to the knitters and a set of garments sent to the dye house as soon as possible. This was done and a couple of days later the goods from this lot came to the finishing room practically perfect for color. The dyer was happy in the knowledge that the trouble did not belong to him, but to the carder. The superintendent was very much pleased that the cause of the trouble had been located and entered enthusiastically into the problem of devising ways and means for blending the stock properly in the blow room, as of course we could not continue to use the packing case as it would handicap us on our production.

It would require a lot of space here and would probably prove very amusing reading were I to describe in detail the many plans and devices we talked over and some of which we tried out at the expense of a lot of time and hard work. We finally decided upon the building of a wooden chute from the mouth of the picker and extending at an angle to a point about two feet from the opposite wall and about the same distance from the ceiling. We found that the stock would strike right in the crotch of the wall and ceiling and fall to the floor, as the distance from the mouth of the picker to this point seemed to be just about right to exhaust the power of the picker. We hung a curtain made from wool bagging from the ceiling around three sides of the chute, letting it hang to within about three feet of the floor. This arrangement prevented the stock from flying about, and did not affect the production in the picker room. We had no further trouble with uneven blends in any way.

It was shortly after this occurrence that a letter reached me from a 22-set mill that I had applied to for a position as carder. It stated that my name was before them and that while they had several men under con-

sideration, they would be glad to have full particulars of my experience and wages wanted, also my references. Here I was again up against it, as of course I could not supply any reference as an overseer and I could not very well refer to my present employers. However, I wrote them a good straight statement of my experience and urged that they give me a trial, but did not refer at all to the matter of wages. During the next couple of weeks several letters passed between us, and as they again asked that I quote the price I expected if they engaged me, I named $4.50 per day to start and if I proved to be the man they wanted after a fair trial I felt that I should receive $5.00. After one or two more letters dickering about the price, in which they offered me $4.00 to start and $4.50 if after three months I proved satisfactory, I finally agreed to accept, but stated that I wanted to work a satisfactory notice with my present employers and requested them to let me know when they would care to have me take the place. The reply to this was that they planned to put a new man at work on the first of the month and if I wanted the place I must let them know by return mail. This letter reached me in the evening and I immediately looked up my second hand and told him what I had been doing, and as the date set for me to reach the new place would allow of giving two weeks' notice, I immediately replied to their letter saying that I would be there on the first of the month. My second hand and I then discussed the possibility of his getting the place and it was agreed between us that I was to urge giving him a trial. If they refused he said he would go with me when I sent for him. Early the next morning I told my little story to both the agent and superintendent and to be brief, they were disappointed and the agent accused me of being a mighty poor business man in not playing him against the other mill on the salary question. I, however, explained that the salary, while of course of considerable importance, was not the whole reason for my wishing to change, the real reason being that I wanted to get into the larger mill and obtain a thorough experience.

After getting my part of the matter settled I took up the subject of giving the position to my second hand and while they at first demurred, saying they did not have enough confidence in him, still they would think it over. I told them frankly that if they did not at least give him a trial that he would be very much disappointed, and that I had agreed to take him along with me if they turned him down. The result was that in the course of the next few days they talked it over with him and finally agreed to give him a trial. He remained with them for a number of years and both parties were grateful to me for my interest in the matter. In the meantime I went to the new position and began the struggle for success.

MIXING WOOL AND SHODDY

BY ELMO

In the mixing of wool and shoddy, there is nearly always trouble arising from the tendency of the latter to lag behind in the picking and carding processes, causing an irregularity in the yarn, and not infrequently serious imperfections in the cloth, such as streaky, rowey and cockled effects. In mixture effects and where the warp and filling are of contrasting colors, the results are often very unsatisfactory.

However carefully the stock may be laid down and blended in the picker room, when it comes from the machine, the current of air accompanying it tends to carry the wool, which is the lighter stock, to the farther parts of the blow-room, while the shoddy, being heavier from the grease and dirt it contains, falls nearer the mouth of the picker, causing a partial separation of the two kinds of stock and an irregularity in the mixture, which is to some extent repeated every time the stock goes through the machine. As a result some portions of the lot are likely to go to the cards with a greater percentage of shoddy than others.

When the stock comes to the cards, the spike-apron of the self-feed takes the long stock more readily than the short, so that

there is a tendency for the shoddy to drop back, whereby the percentage of this stock is increased as the amount of stock in the feed gets low. To remedy the difficulty in the picker room, various plans have been adopted, none of which wholly overcome the trouble. One plan is to hang a wooden apron in front of the picker at an angle to turn the stock to the floor, not allowing the wool to fly to the outer parts of the room. Another good idea is to have the blow-room as small as possible, to do the work conveniently, thus giving less room for the wool to get away from the shoddy. After striking the walls of the room it is forced to fall back where the shorter stock is deposited, thus avoiding a separation.

In carding it is a good plan to keep the self-feeds well filled, whereby more uniform results are obtained than if the stock is allowed to run low in them. The writer was once called to a position where they were having serious trouble from rowey goods caused by the tendency to separation above referred to. We adopted a plan that entirely overcame the difficulty. We first made a mixture of 20 per cent. of wool and 80 per cent. of shoddy and ran it through a breaker card. The thorough mixing of this amount of wool with the shoddy put it into a condition that insured a more uniform mixture in the picker room and did away entirely with the tendency to separate in the self feed. The fibers of shoddy were so thoroughly combined with those of the wool that they were carried along with greater uniformity, both in the picking and the carding. One may get the same result by using fleeced shoddy, which is a stock similarly prepared by the shoddy manufacturer. The shoddy maker sometimes makes this combination with stock that is too short to dispose of to advantage. The woolen manufacturer is often led to believe that fleeced shoddy is intended to deceive him, but it is really to his advantage if procured at a reasonable figure.

Where one has not the machinery to prepare the stock as suggested, he may get good results by selecting his shoddy, and then arranging with the party to combine with it the desirable percentage of wool. This the shoddy manufacturer can easily do, and one can know he is getting just what he pays for. If one were using a shoddy costing 16 cents per pound, he might hesitate about paying 24 cents, because it seemed excessive; but that is about what the combination would cost if made with 20 per cent. of wool at 55 cents per pound. It would be just as cheap, since the wool is simply added first instead of later in the picker room, and the advantage of this plan is without question. We adopted this plan on a line of goods in which we used all of our short waste and shoddy, and it gave excellent results, where we had been up against all kinds of trouble generally accompanying such low grade mixtures. If cotton is used in connection with wool and shoddy, it is a good plan to combine the cotton with the shoddy; as the heavy shoddy and the light cotton produce a mixture that will keep its place with the wool in the picker room, and likewise be beneficial in the carding and spinning. Any percentage of long stock may be used with the shoddy, even 5 or 10 per cent. being an advantage, but 20 per cent. or more will give the best results.

It will be readily seen that the mixture gives a loftiness to the stock that will cause it to go along with the wool more uniformly in picking. When it comes to the feeding to the cards, the spike-apron takes hold of the wool fibers, and the shoddy is so thoroughly combined with them that they cannot get away, as is the case when the shoddy is only combined with the wool in the picking. By a little careful calculation, the final mixture may contain the desired percentage of short stock, and the results obtained are well worth the trouble. A second hand breaker card can be procured for a song, and if placed near the other carding or picking machinery, the cost of running it is small. If it is desired to get similar results at less cost, a good selection of long stock, such as garnetted worsted, or the like, may be used with the shoddy; but care must be taken to have a good live stock, not too coarse. Coarse or wiry fibers will cause twitty yarn by slipping in the spinning.

CORPORATION LAW IN ENGLAND

By Our Regular English Correspondent

The idea that British company law is on the whole better than the average of State laws governing incorporated business undertakings appears to be very widely held among Americans. They may even be disposed to attribute too much to the conditions under which corporations are legalized. Outside of cotton spinning, public money has had relatively little part in building up the British textile industries and it is perhaps rather to the conditions under which private partnerships exist that one should look for an explanation of the growth of manufacture in England. The object being, however, to set forth what British company law is and to illustrate it by one or two textile examples, it is the law concerning corporations that is now dealt with.

The existing law is founded upon an Act of 1862 to which have been added many amending statutes, the last bearing a date so recent as 1908. The original law addressed one of the evils of those now distant times by making it illegal for any company, association or partnership of more than twenty persons to carry on business for gain unless registered under the company or other appropriate Act. The registration involves certain obligations to the world at large and to the Government. The English limited liability company has to wear the full word "Limited" as part of its name, possess a registered office and keep a register showing the names of its directors or managers, and failing to do so is liable to penalties in each event of $25 a day. Its objects are registered as well as its name, and a company may not legally engage in any uncovenanted undertakings, even with the fullest consent of the shareholders. The amount of its capital is registered and also the state of its division into shares. The directors are bound to cause true accounts to be kept of sums received and expended by them and also of the matters in respect of which these receipts and expenditures take place. The accounts have to show what are the assets and liabilities of the company. A register of the names, addresses and occupations of all officers and shareholders of the company has to be kept open for the inspection of anyone, but a fee of 25 cents may be charged to non-shareholders for each examination of their register.

Any shareholder has a right to inspect the register free of charge. The law provides that the company "shall if required supply any member or other person with a copy of the whole or any part of the register on payment of 6d for every hundred words copied." There is a penalty for failure to comply with this provision of the law. Following is the prescribed form in which share registers have to be kept:

REGISTER OF MEMBERS

Folio in Share Ledger .....
Name of Member .....
Address .....
Occupation .....
Number of shares .....
Distinctive number of shares, both inclusive
from ..... to .....
Amount per share paid .....
Date of entry as a member .....
Date at which the person named ceased to be
a member in respect of the shares set
opposite such date in next column.
Distinctive number of shares referred to in
the preceding column.
Remarks.

Anyone has the right to walk into the office of an English limited liability company, put a shilling on the counter and demand to have the share register opened to him. During at least two hours in each business day the corporation would have no option but to accede to the request. Were they to refuse, the applicant for information could at once apply to a High Court Judge sitting in Chambers for an order to permit immediate inspection. The applicant could make affidavit and failing a good defense the Judge would issue an order and if it was disobeyed he could sequestrate the property of the company. By paying a shilling at Somerset House, the London office of the Registrar of Joint Stock Companies, anybody can examine the papers relating to any registered company, or can buy copies of them at so much per folio.

Limited companies since 1907 are of two classes, public and private. A public company may be formed by any seven persons complying with the law and a private company by any two persons. It is essential to a private company to impose restrictions upon the transfer of its shares and to limit the number of its shareholders to fifty (employed shareholders excluded). The private company is prohibited from inviting the public to subscribe and is an institution chiefly used and intended for those who wish to limit their own liability in respect of a private business concern. Both alike have to make an annual return to the Registrar of Companies showing the amount of capital and number of shares; the number of shares issued from the commencement up to date; the calls on each share, calls received, calls unpaid and amount paid on shares forfeited; the names, addresses and occupations of all members and the shares held by each and also an account of the number of persons who have ceased to be members since the making of the last return. There is a substantial fine for failure to send in these particulars and, in the event of their not coming, the Registrar after taking certain steps is at liberty to strike the concern from the rolls, when it can only get back by going to considerable expense.

Private companies have no occasion to issue a prospectus, but public companies must do so or must file with the Registrar a set of particulars disclosing all the material facts. The prospectus, on the strength of which stock subscriptions are sought, has to show the names, addresses and descriptions of the signatories and the shares held by each, the number of deferred or management shares, the amount of a director's share qualification, the remuneration of directors, the names of the directors, the minimum subscriptions with which the directors will proceed to allotment, the number and amount of shares or debentures agreed within the preceding two years to be issued as partly or fully paid, the extent to which paid and the consideration, the names of the vendors of the property acquired, the amount of the goodwill, the amount paid at any time within two years as underwriting commission, the amount of preliminary expenses, the amount paid (within two years) to any promoter, dates and particulars of any material contracts, names and addresses of the auditors, particulars of the nature and extent of the interest of every director in the promotion, the rights of voting.

Only since 1901 has it been obligatory to make a separate statement in the prospectus as to the valuation of the goodwill. The feature has added a new piquancy to flotations and been instrumental in checking some which might otherwise have gone through. A manufacturer not unknown in America tried to float his Bradford mill as a public company within three or four months of the operation of this change. As the prospectus showed that $1,000,000 was asked for goodwill the issue had to be withdrawn. Official attention to the item of goodwill grows closer and within the last few weeks a Manchester textile company has been brought into court for omitting to state the item of goodwill separately in its annual return. The court ruled the case out. Goodwill must be distinguished in the prospectus, but a summary of the general nature of the assets suffices for the annual return.

Modern improvements in the regulations as to prospectuses and stock-selling circulars have done something to curtail fraudulent promotions, as well as to restrain excessive capitalization. They have made promoters and directors wary, for the shareholder has recourse against those who wilfully deceive him. If he can prove that a misstatement was made in the presence of the person charged and can show further that the falsehood was material, that he was induced by it to take shares and that he suffered damage, he is entitled to recover—always providing that the person charged cannot show that the statement was made in good faith and on reasonable grounds. The misstatement, to be actionable, has to be of existing fact not of prophecy or expectation. In extending protection to the investor the law has not forgotten the creditor of the company. Mortgages or charges upon the assets have to be registered and these appear in the official gazette and are copied into trade papers. Charges or mortgages for the

purpose of securing any new issue of stock or debentures or on uncalled capital or chattels, or land or book debts, or as floating charge, have all to be notified.

Gradually the net has been drawn tighter at each successive amendment of the laws and it is noteworthy that practically no one advocates their relaxation. The only complaints heard are that, at this point or that, there is a loophole which ought to be tightened at the next occasion.

Comparatively little as the public company is used by textile manufacturers the private company rules are availed of increasingly. The "limited partnership" which came into being in 1908 is availed of principally by small traders who thereby save some of the expense of forming an ordinary limited company. The principle is an adaptation of the "en commandite" of the Continent. There has to be one partner or more who is fully liable and he may by registration associate with himself a limited partner or partners contributing a definite sum who bind themselves not to withdraw for a given period. In this case, as in that of the full company, there is demanded more publicity than is expected of a purely private enterprise and requirement of publicity or disclosure is the distinctive feature of the British company law. In return for the limitation of their liability the parties have to disclose more or less of what they are doing and the investor and creditor are free to guide themselves by what they can see. The company once incorporated is at liberty to trade anywhere, in accordance with its articles, unhampered by such restrictions as are imposed by conflicting State laws.

The laws impose no maximum limit of capitalization and do not prevent a parent company from forming fifty little subsidiary companies each with a nominal capital of a few hundred dollars and each perhaps turning over a thousand times as much money every year. They do not prevent the formation of cotton spinning companies with a small share capital or hinder these from obtaining working capital by loan. The laws do not forbid architects, cotton brokers, machinists, engine builders and speculators from putting their resources together to build unwelcome mills; or restrain them from refusing to employ or deal with anybody who declines to invest in the company by way of shares or loans. They have not prevented over-capitalization, but the most serious textile cases occurred before the law was stiffened. They have worked on the whole for good and the greater stringencies have only been brought to bear after cause had been shown. Their form is neither perfect nor final, but it is better than before and may be amended again.

THE MIDDLE STATES TEXTILE ASSOCIATION

The third annual convention of this association was held at the Louisville Country Club, Louisville, Ky., on July 17. After the meeting had been called to order the committee on rules for the purchase of cotton presented a report recommending that "all settlements for weights must be on the basis of mutual allowances." After discussion the recommendation by the committee was adopted.

Capt. Marrs, of Henderson, Ky., gave an interesting account of his experiences in the purchase of cotton covering a period of more than twenty-seven years. He showed the changes that have been made in the customs and methods of purchasing and the changes that have taken place in the trade. He called attention to the fact that from the former allowance of 1 per cent. franchise the settlement of weights has now worked around to the more equitable basis of mutual allowances. He also stated that in his long experience he had noticed that cotton is not as carefully handled or packed as was the case in former days. Following Capt. Marrs came the reading of a paper on "Freight Rates and Overcharges," by Lee Rodman, Cannelton, Ind.

At the opening of the afternoon session the committee on nominations recommended that the old officers and directors be reelected. Their recommendation was endorsed by a unanimous vote and the following officers and directors were reelected:

president, Capt. Paul J. Marrs, Henderson, Ky.; vice-president, Philip S. Tuley, Louisville, Ky.; secretary and treasurer, Lee Rodman, Cannelton, Ind.; board of directors, Robert E. Cochran, Maysville, Ky.; Charles N. Brown, Evansville, Ind.; James Maynard, Knoxville, Tenn.; E. S. Hobbs, Aurora, Ill.

The subject of labor and labor laws came in for an extended discussion and it was the unanimous opinion of those present that manufacturers should be more active in promoting the passage of laws for improving the conditions of the operatives in order to forestall the unfavorable laws which are being passed merely to further the political ambitions of the people proposing them. Philip S. Tuley of Louisville, Ky., then read a paper on "Cost Systems."

A resolution was passed fixing Louisville, Ky., as the permanent meeting place for the conventions of the association. The meeting then adjourned.

FREIGHT RATES AND OVERCHARGES

By LEE RODMAN, Cannelton, Ind.

The present laws relating to interstate commerce require the shippers to possess a knowledge bordering on the omniscient, if they are to escape loss. A knowledge of the correct rate is presumed and should the quotation or rate furnished be less than the official rate, the higher rate must be paid even though it means a loss to the shipper as a result of his having accepted a contract based on the erroneous rate. The law was amended in 1910 so as to provide a penalty of $250 accruing to the United States, for a carrier's misstating a rate in writing or refusing to give a rate in a reasonable time, if the request had been made in writing and a loss had resulted from failure to receive quotation or on account of shipment being made based on incorrect rate. As this section of the act is not generally understood, I will give it in full:

"If any common carrier subject to the provisions of this Act, after written request made upon the agent of such carrier hereinafter in this section referred to, by any person or company for a written statement of the rate of charge applicable to a described shipment between stated places under the schedules or tariffs to which such carrier is a party, shall refuse or omit to give such written statement within a reasonable time, or shall misstate in writing the applicable rate, and if the person or company making such request suffers damage in consequence of such refusal or omission or in consequence of the misstatement of the rate, either through making the shipment over a line or route for which the proper rate is higher than the rate over another available line or route, or through entering into any sale or other contract whereunder such person or company obligates himself or itself to make such shipment of freight at his or its cost, then the said carrier shall be liable to a penalty of two hundred and fifty dollars, which shall accrue to the United States and may be recovered in a civil action brought by the United States."

This amendment has resulted in more careful quotations, but still does not afford full relief. If more complaints were made to the Interstate Commerce Commission under this section, the errors in quotations would be materially reduced. It is not reasonable, however, to expect many formal complaints, especially when the shipper is dependent on one or two railroads. Better service is secured if harmonious relations are maintained between shippers and carriers.

As shippers cannot secure reparation from carriers for loss on account of errors in quotations, the next best thing for them is to be more careful in their methods of securing quotations. Adopt a definite form and always make a request for a rate in writing, stating definitely and accurately the commodity, using the same technical description given in the classification. Where the shipper has access to two or more roads, he should request quotations from each. If located on one road only, he should make request to the nearest division office as well as to the local agent, and on important contracts, take up the matter directly with the general freight agent. Always insist on tariff reference being given when quotation is made. This is very important and is a great help in collecting claims should overcharge result. A little study will show that rates to cities in the same locality are closely related. A comparison of a new rate with a known rate to an adjacent city is a good check that should not be neglected.

A rate book should be kept and some one person in the office made responsible for its being up to date. Upon receipt of a rate it should be entered with authority, tariff reference and date. Rates that have not been used frequently should not be used as a basis when figuring on a large contract. It is much easier and cheaper to get the correct rate and adjustment made before shipments than afterwards. We recently had an experience which will illustrate the importance of this. For many years a carload rate on brown cotton bagging from Cannelton to western points had been carried in Agent Tucker's tariff. We did not have occasion to be interested in this rate for several years, and recently when an inquiry developed, we began investigating it before making a quotation. The railroad officials could not locate the rate or find any reference to it in old tariffs. On being asked if they would reinstate it if it had been withdrawn, they declined, saying that as they could not locate the original rate, it would have to be treated as a new one and in the present rate situation a reduction of this kind would call for a readjustment of many other rates which they were not willing to open up. Fortunately, we were able to furnish tariff reference and prove existence of the former rate, this making possible the restoration of a favorable rate at a time when it would have been impossible to secure a reduction. Had we taken it for granted that the old

rate was in effect and made shipments, we would have had to pay a rate that would have made the business unprofitable, and the restoration of the old rate would not have been brought about until too late to be of any benefit on this contract.

The fact that the restoration of an old rate is not regarded by the Interstate Commerce Commission in the same light as a new rate, and that the roads are frequently willing to restore an old rate when they would not consider making a new rate of any kind, makes it important to have a careful and accurate reference to authority and tariff. Without this reference it is often impossible to prove the former existence of the rate, as the great mass of tariffs that have been issued make it impossible to get ready reference to old issues unless you know exactly the one you want.

A great many shippers overlook the advantage to be derived from being on friendly terms with contracting and traveling freight agents. Many class these men with life insurance agents and treat them with scant courtesy. This is a great mistake. The majority of these men are very well posted and are frequently able to dig out rate and routing information which the general office clerks overlook. The personal equation counts just as much with railroad men as it does with the rest of mankind. Give a man a pleasant greeting and when you need his assistance, you get results far superior to those given by the man who has it in for you, or the office man who regards your inquiry as part of the day's work to be gotten rid of with the least possible effort. I know of one case where a request for rate readjustment was denied a company, causing it quit a loss, because of the manager's unpopularity with the soliciting freight agents. On the other hand, I have frequently secured adjustments that were possible only as a result of full cooperation on the part of the street men.

As the Irishman said about trouble, the best way to handle freight claims is not to have them, but, like taxes, they cannot be avoided entirely. In making a claim state it clearly, give technical descriptions accurately, cite tariff reference to facilitate quick handling. Attach bill of lading and expense bill securely to claim after making accurate copy of each for your file. When claim is acknowledged, see that claim number is noted on your copy. Sometimes the roads lose claim papers and you should be in a position to furnish full set of duplicate papers, otherwise the matter may drag along for years. The less work you leave for the railroad and the fewer chances you give them to take up sixty days asking for additional information, the quicker you will secure settlement. Careful handling of shipments and rates will eliminate a great many claims.

The lack of close and intelligent attention to rates and shipping details is responsible for a large percentage of the losses and troubles of the shippers. The Interstate Commerce Commission is always willing to give information to anyone making an inquiry. To secure action on a complaint it is not necessary to be represented by an attorney if the complainant is able to properly set out the facts. Communications addressed to the Secretary of the Commission, Washington, D. C., will always have prompt attention. Of all the state, county and other public commissions I have had dealings with, I have found the Interstate Commerce Commission the most obliging.

COST SYSTEMS

By P. S. TULEY, Louisville, Ky.

Cost systems are essential to the intelligent operation of any manufacturing plant. On a knowledge of the cost of its product depends the decision whether to accept or refuse orders. Prices cannot be safely fixed in the absence of such accurate knowledge of cost. We have often felt that among some of our competitors such cost systems were not in vogue. Otherwise competitive prices would not touch so close upon cost and frequently fall below cost. Ruinous competition is not always to be explained by the fact that competitors have bought their raw material at exceptional advantage. The average mill possesses an equipment more or less modern and commands the services of operatives of average training. Otherwise such mills could not survive. It is therefore a fair inference that, where prices are too low to net a fair manufacturing return, the prices are named in ignorance of the actual cost.

We have frequently felt, moreover, that where costs are kept they do not always embrace depreciation of plant. This is a factor which cannot safely be disregarded and the manufacturer should lean towards the liberal side rather than to the conservative in fixing his depreciation. This is not always included solely in wear and tear. On the contrary it is frequently found that the equipments have become obsolete by reason of new inventions, resulting in the possibility of installing machinery of productive capacity far in excess of the old machines.

It is to be feared that not all manufacturers resort to the rigid classification of cost in detail. On the contrary many manufacturers are satisfied to classify expenditures under general heads as repairs and expenses. Much valuable information can be secured by keeping accurate record of all expenses of manufacture under a variety of accounts. In this way it can be determined whether there had been an indue increase in such items as fuel, oil, water, repairs, expense, insurance, taxes, etc. The operating department of the mill will find such information of great value and by recording expenditures in detail it likewise gives the manager a thorough grasp upon such matters.

It is essential to keep an accurate account of shrinkages in process, so as to arrive at the net weight of fiber for each individual successive process. To arrive at the element of picking cost in yarn or fabric, it must be remembered that the pounds passing through the picker cannot be used as the divisor, but rather such number of pounds as is arrived at by taking into account the loss in the subsequent processes. A similar reduction in the number of pounds used as a divisor should be made for each successive process, so that when all of the dividends are ascertained they can be added together and give a thoroughly accurate final cost of the fiber in the finished state.

It was pointed out by the writer of a paper at the recent meeting of the National Association of

Cotton Manufacturers that the cost of each hank roving, or number of yarn, should be arrived at by a system which impresses us as well worthy of consideration. He stated that the strenuous times which cotton mills have passed through in the last ten years and the difficulty of keeping the plants in continuous operation, had induced many manufacturers to change over from products habitually made to others holding out hope of greater profit or the chance that the plant could be more continuously operated on such new lines. It was his contention that in many instances, where such changes would involve radical departures from previous customs, the precaution was not taken to determine the bearing of such departures on cost. It was his suggestion that the overhead or general expense of the factory itself and of each room should be kept separate and the cost per spindle per day should be ascertained for each department or process. When this had been ascertained, the actual production per spindle for a similar period, whether for the day, the week or a longer period should be ascertained so that by dividing the overhead cost per spindle by the production per spindle the actual cost per pound for each individual hank roving or number of yarn in any process could be definitely ascertained. This system he pointed out would make it possible to ascertain the actual cost of any number of yarn spun and would put the cost precisely where it belonged. Any other plan of ascertaining the cost of hank roving, not usual or customary, would simply be a matter of estimate, whereas this plan would give the actual result. In this way it could be determined whether or not the production of these unusual numbers of yarn was safe or even desirable.

We propose to adopt some such plan in keeping track of our cost. It is particularly desirable in so far as we are concerned because we spin so many different numbers of yarn, and are called upon to provide so many different preparations of roving.

We also have in mind the expedient of keeping track of the production of every machine following the drawing, by the use of hank clocks. We propose to establish a schedule of what we would be satisfied to regard as a normal and fair production for each of these machines, whether it be a slubber, intermediate, fine frame or spinning frame. We shall keep an accurate account of the number of hanks produced by each frame and by reference to the schedule of roving or yarn under production we can determine at the end of each week the number of hanks turned out and be able to compare the production with the normal number of hanks that should have been turned out, thus arriving at the percentage of efficiency of the plant. Of course no two mills would hit upon precisely the same scale of normal production. This would have to be a matter to be determined by each mill for itself and according to the class of stock used, the numbers of yarn spun, the twist introduced, etc.

We believe that an account such as this will give information of great value. It will help us to tell whether or not we are getting out of each respective process what we have a right to expect. It will put the overseers on their mettle.

THE COTTON TRADE IN THE PHILIPPINES

By HAROLD M. PITT of the Manila Merchants' Asso.

The exports of cotton goods from the United States to the Philippines show a total of $2,936,368 for the year. The Philippines, like all other tropical countries, are comparatively large users of cotton goods. During the period 1890 to 1894, which is the last under Spanish rule of which authentic record is available, the annual importation of cotton goods averaged $5,902,578, which was more than 35 per cent. of the total of all imports.

There has been less proportionate gain in the importation of goods of this character, since American occupation, than in other staple lines. Thus, while the total of all imports increased from an average of sixteen million dollars for the years 1890-1894, to thirty-seven million dollars worth in 1910, equal to 130 per cent., the increase in imports of cottons was but two and one-half million dollars, or about 40 per cent. The reason for this could probably be found in the fact that a certain amount of wearing apparel was always a prime necessity and as the purchasing power of the people was enlarged by an increased output of export products, the gain in earnings went more largely for the purchase of articles of utility and food, which before had been in the class of luxuries, rather than for the necessaries.

Prior to 1898 the United States supplied practically none of the cotton goods used in the islands. The trade for years had been controlled in the main by Great Britain and that country has continued its domination up to the present time although, since 1898, Japan and the United States have been new factors in the competition. Spain and Switzerland continue to command a proportion of the trade in the particular lines for which those countries have long been the sources of supply, although Spain's trade is declining steadily. There is a good demand for certain high grades of cotton textiles and knit goods furnished by Germany, and imports from that country are gradually increasing. Japanese imports have been enlarging steadily for a number of years. In 1907 they were valued at $394,976; in 1908 at

$515,615; in 1909 at $662,019, while in 1910 they neared the million dollar mark with $918,354. These imports consist principally of crape textiles and weaving yarns. The light weight of Japanese crape adapts it especially to use as shirting material and for tropical wear generally, while its odd texture appears to have impressed the Filipino public quite favorably.

The advantage secured to the United States by the recent free trade legislation is made most conspicuous in the increased trade in cottons shown during the past year. The total importations of cotton goods amounted to $8,522,307 in 1910 against $6,944,978 in 1909, an increase of $1,577,329. The imports from the United States in 1910 were valued at $2,120,587 against $590,635 in 1909, an increase of $1,529,952, showing that practically the entire increase was absorbed by American manufactrers. During the same period the trade of the United Kingdom decreased from $3,499,452 to $3,455,779, still leaving that country in the first place, but with a greatly reduced percentage of the whole to its credit.

A study of the imports of cotton goods into Porto Rico from the United States proves very suggestive of the possibilities for this trade in the Philippines. Prior to the war with Spain, the United States sold a very small amount of the cottons that were imported into Porto Rico. At the present time it practically controls that trade. With a trade approximating thirty millions of dollars in cotton goods established in the Philippines, American manufacturers would be warranted in maintaining depots in Manila for supplying this trade, from which they would also be able to reach the trade of China. It is obvious that the prestige of American cotton goods would be greatly increased throughout the Orient by having a base of supply in Manila. Cotton continues to constitute the largest single item of imports notwithstanding a gradual decrease that has taken place in the proportion the item bears to the whole. In 1909 with imports of $6,944,978, it represented 24.9 per cent. in total imports of $27,794,482, while in 1910 the value was $8,522,307, which amounted to 23 per cent. in a total of $37,061,925.

The Collector of Customs in his annual report, presents some interesting tables and comparisons on the cotton goods trade of the islands. We quote:

Imports of Cotton Goods in the P. I.

1904	$4,962,354
1905	6,429,873
1906	6,754,369
1907	8,416,246
1908	8,011,834
1909	6,944,978
1910	8,522,307
Total	$50,041,961
Annual average	$7,148,851

As may be seen by the following statement, the value of importations of cotton textiles from the United States during 1910 was more than five times, and from Japan more than four times those for 1906, while from China and Germany there was an increase of approximately 50 per cent. England fell slightly behind, as did also Switzerland, while Spain lost almost half of her trade, and that of the British East Indies was reduced approximately one-third:

	1906		1910		
SOURCES OF COTTON GOODS	VALUE OF IMPORTS	PERCENTAGE OF TOTAL VALUE	VALUE OF IMPORTS	PERCENTAGE OF TOTAL VALUE	PERCENTAGE OF INCREASE (+) DECREASE (—)
United Kingdom	$3,455,862	51	$3,455,779	40	
United States	390,483	6	2,120,587	25	+443
Japan	221,215	3	918,354	11	+315
Spain	885,210	13	451,262	5	— 49
Germany	279,560	4	421,985	5	+ 51
Switzerland	484,303	7	412,864	5	— 15
China	239,915	4	353,679	4	+ 47
British East Indies	372,259	6	144,196	2	— 62
All other	425,562	6	243,610	3	— 43
TOTAL	$6,754,369	100	$8,522,307	100	+ 26

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

FANCY COTTON VELVETS

BY ROBERT DANTZER

[Translated from the French by the Editor of the Textile World Record.]

Some time ago the Textile World Record published an article written by me on this subject. This article was extensively copied in foreign journals and the numerous requests that I have received for it indicate the widespread interest felt in the subject, which is at present but imperfectly understood. While it is very easy to reproduce an ordinary woven fabric from a small sample, the reproduction of a dyed velvet presents great difficulties. The cutting of the velvet changes radically the appearance of the fabric and the pile picks complicate the analysis in a singular manner. In order to reproduce a cut and dyed velvet from a small sample it is necessary not only to possess skill, but above all it is essential to understand the principles on which the fabric is constructed. Since the first article was published a number of new fabrics have appeared on the market and I propose now to describe the characteristic types which will enable the reader to produce numerous other designs.

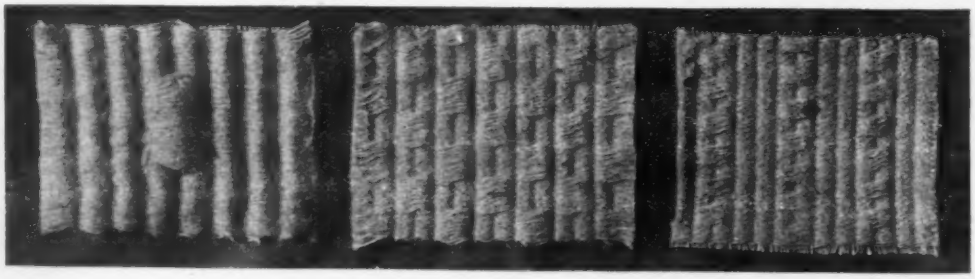


FIG. 1. FIG. 9. FIG. 17

FIG. 3.

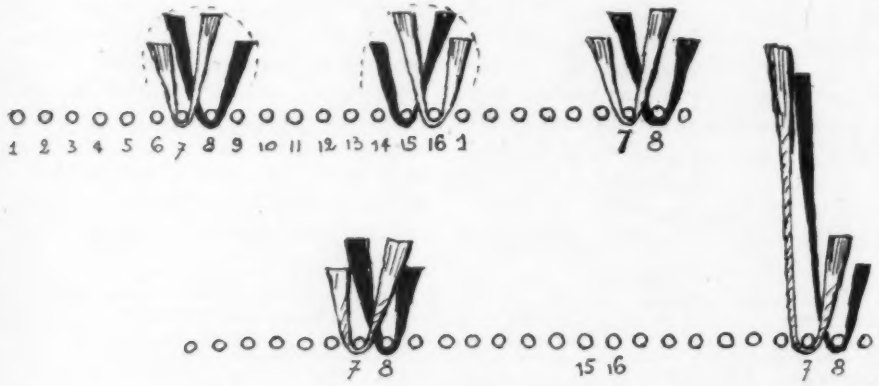


FIG. 4.

The greater number of fancy velvets woven on a dobby loom are made with a

corded ground work, the pattern being produced by an arrangement of so-called planchettes. A planchette is in reality a defect produced by the omission of the binding threads. Fig. 1 shows a planchette formed on a 6 and 8 end corded velvet, the weave being shown at Fig. 2. As the rib is made with 6 and 8 ends the floats where the binding thread is omitted will cover 15 threads. Such a defect is remedied before cutting by stitching the float with an ordinary sewing machine. If this defect is not remedied in time it produces a tuft as shown at Figs. 3 and 4. Fig. 3 shows a cross section of a regular tuft, but if threads 15 and 16 are lacking

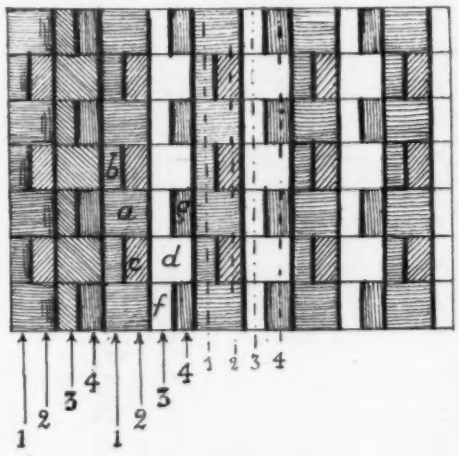


FIG. 14.

the effect shown at Fig. 4 is produced. The projecting tufts are slightly shortened by the singeing process in finishing, but nevertheless they remain longer than the ground pile and cause a very apparent defect. The tuft at Fig. 4 is produced when the planchette does not extend very far, the knife and guide not having deviated from their course. In producing fancy effects the planchette should not be longer than the guide itself. Fig. 1 shows a float which is too long to produce a good effect when cut. Fig. 5 is a weave in which the floats cover alternately 4 and 6 threads. The weave shown at Fig. 6 is sometimes used. Here we find 6 pile picks for 4 ground picks, while at Fig. 5 the number of pile picks is double the number of ground picks. These two patterns are similar in appearance, but with the same number of picks the second weave gives a more durable fabric. As the design covers a certain number of cords, in order to simplify the pattern and reduce the number of shafts required, it is preferable to use the weave shown at Fig. 7. The stitching threads are arranged as in the preceding weaves. The floats in this case are all of the same length and cover 5 threads. In the preceding patterns on the contrary the floats vary in length, some covering 4 and others 6 threads.

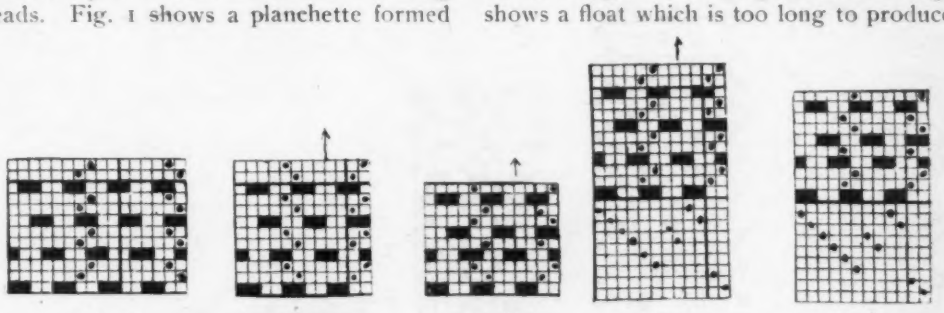


FIG. 2. FIG. 5. FIG. 6. FIG. 7. FIG. 8.

Many manufacturers of corduroy and even some technical writers claim that a round cord can be obtained only by the last named method, that is, by having the floats of unequal length, thus John I. Taylor in his work "Cotton Weaving and Designing," says that "round cords are made by employing floats of two lengths." Experience and reason show that the weave at Fig. 7 gives absolutely the same result as those which precede it. The knife in its course does not cut the floats at the central point of their length, but it cuts them in the center of the distance between the two binding threads, consequently, the result is the same in both cases. The weave, Fig. 8,

FIG. 13.

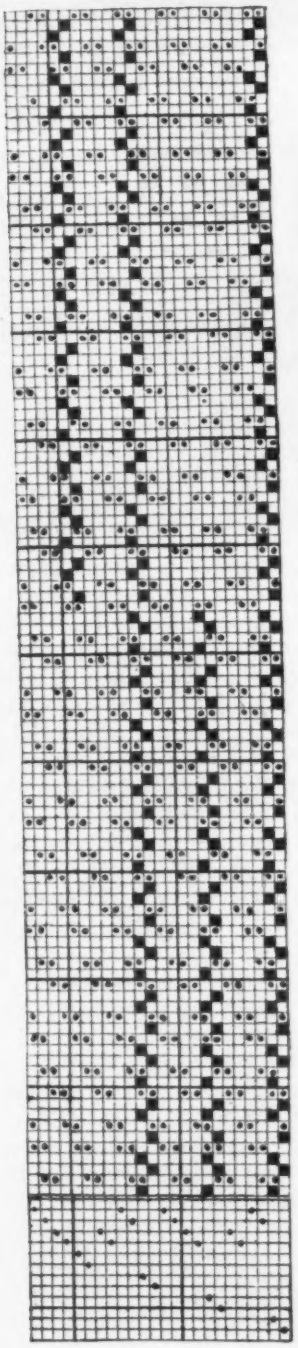


FIG. 10.

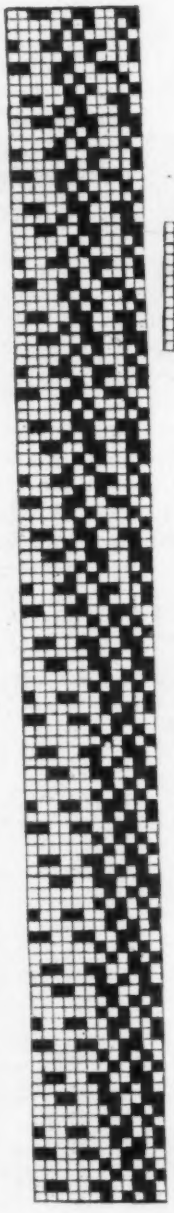
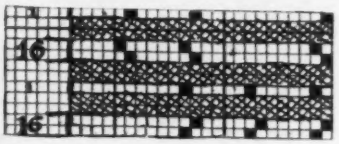


FIG. 11.



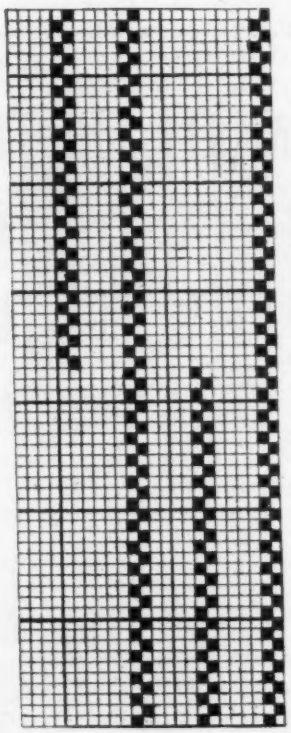


FIG. 12.

is similar to Fig. 7, but with an irregular arrangement of the filling; as a result the filling pattern is reduced to 10 picks. The sample shown at Fig. 9 illustrates an application of the principles just stated. On the ground weave, Fig. 8, the planchettes are arranged in checkerboard style. Fig. 10 shows the complete weave required for this design, which includes 4 cords, or 24 warp threads, the filling pattern including 110 picks. Twelve shafts are required. The chain draft is shown at Fig. 11. Fig. 12 is a reproduction of Fig. 10 with the ground picks removed. This draft gives a better idea of the effect in the cloth. Sometimes the design is drafted as shown at Fig. 13, the numbers at the left indicating the number of times that the picks are repeated. Fig. 14 is a sketch of the design shown at Fig. 9, the vertical lines indicating the stitching threads. The cut is made from left to right, the arrows, 1 to 4, showing the successive cuts by the knife.

The knife first cuts the floats in the section, b, while those in section, a, are cut for 1/4 of their length. The second stroke of the knife cuts the center of the floats in the section, c.

(To be continued.)

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

Fig. 671 is another pattern of this kind requiring 10 shafts. The ground weave and drawing-in draft show the method of construction. The weave draft is made by extending the filling to correspond with the pattern.

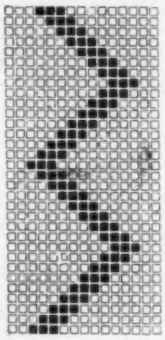


FIG. 672.

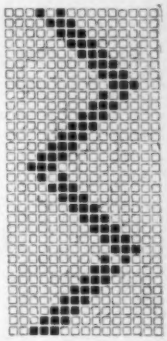


FIG. 673.

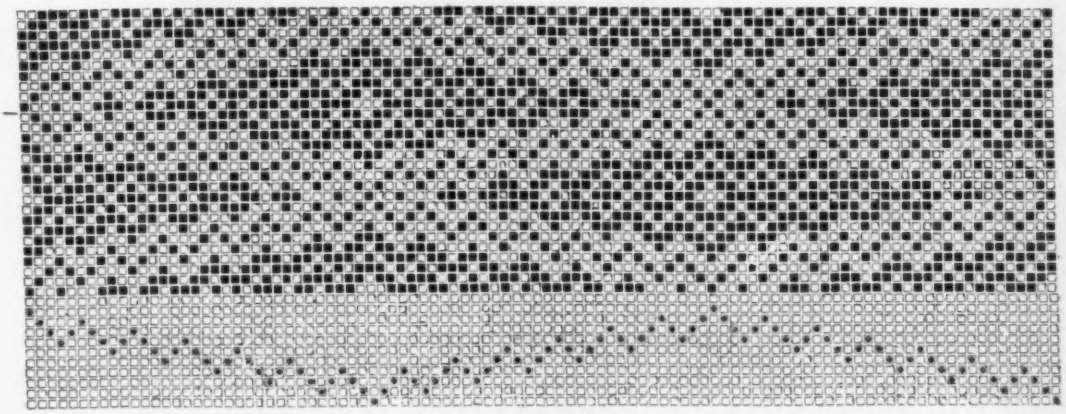


FIG. 671.

Pointed twill patterns have the general defect that the float at the apex is nearly double that of the other floats. When it is important to have the size of the floats practically uniform, the longer floats at the points are modified by the insertion or removal of risers. This is illustrated at Figs.

(Copyright, 1912, by Samuel S. Dale.)

There are 6,354 establishments in the United States engaged in the manufacture of men's clothing and shirts, and the value of the output of this trade increased from $406,768,000 in 1904 to $568,077,000 in 1909.

672 and 673. Fig. 672 is a pointed twill reversed fillingways. At the point is found a float of five risers, while the regular float of the twill is but three risers. Fig. 673 shows the same draft in which the float of five at the point has been broken up by the removal of one riser. This causes an increase in the number of shafts required for the weave.

FIG. 674

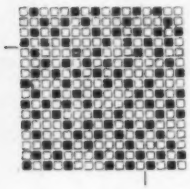


FIG. 675.

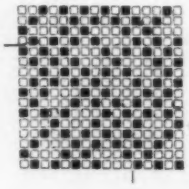


FIG. 676.

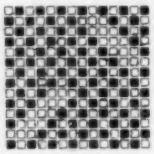
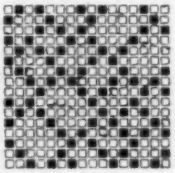


FIG. 677.



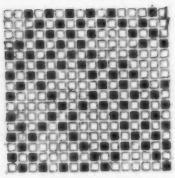


FIG 678.

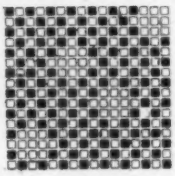


FIG. 679.

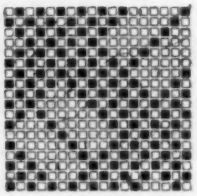


FIG. 680.

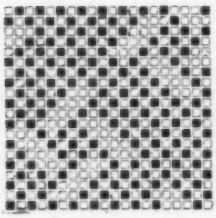


FIG. 681.

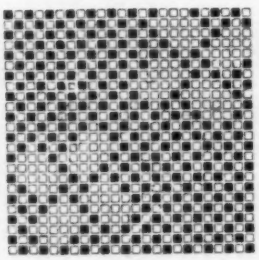


FIG. 682

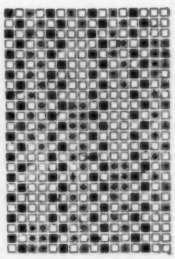


FIG. 863

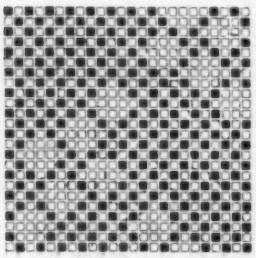


FIG. 684.

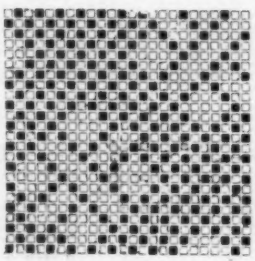


FIG. 685.

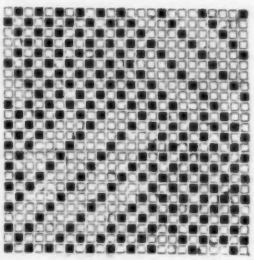


FIG. 686.

Diversified Plain Weaves

Very attractive patterns can be obtained by adding or removing risers from a ground

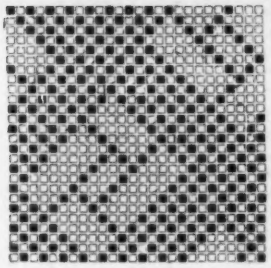


FIG. 687.

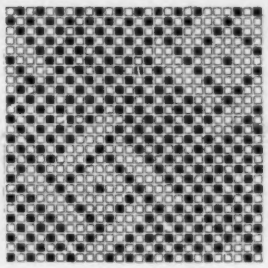


FIG. 688.

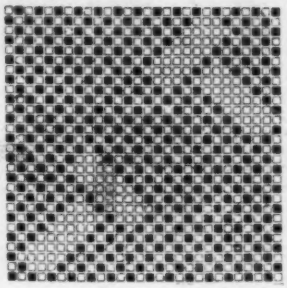


FIG 689.

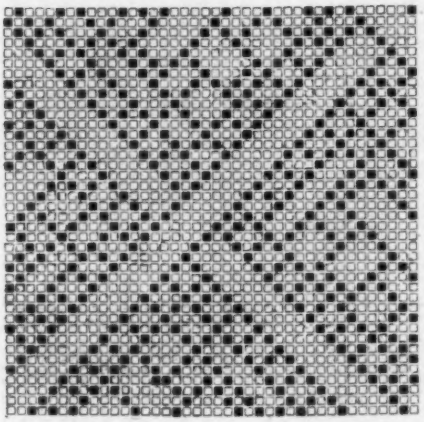


FIG. 690

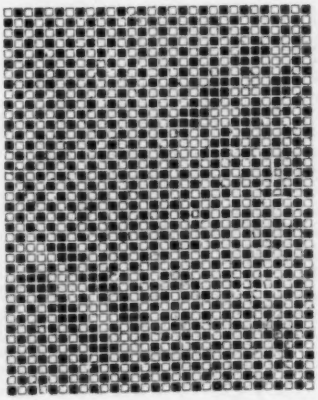
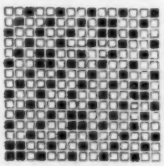


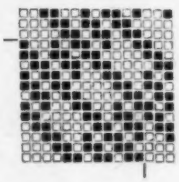
FIG. 691.

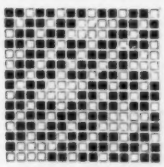
FIG. 694.

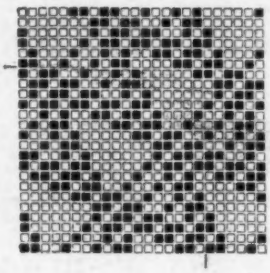
FIG 695.

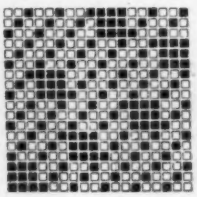
FIG. 696.











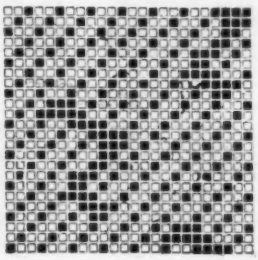


FIG. 697.

FIG. 698.

FIG. 699.

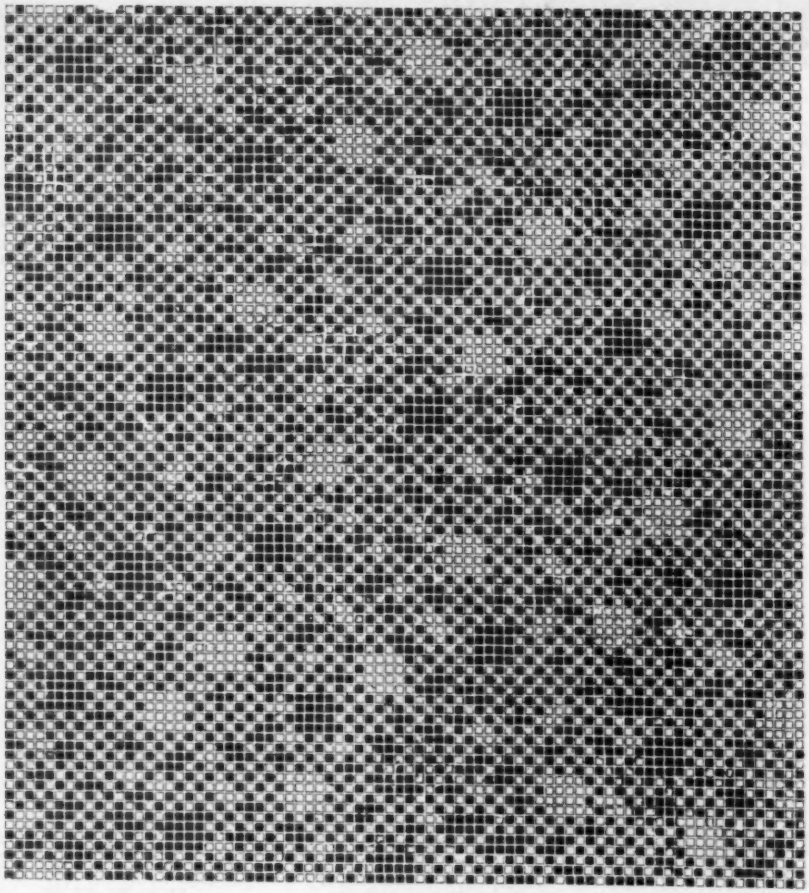


FIG. 693

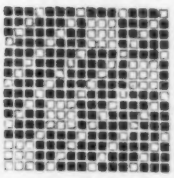


FIG. 700.

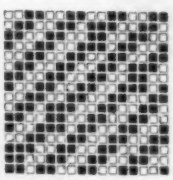


FIG. 701.

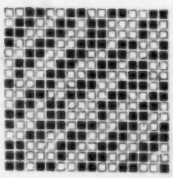


FIG. 702.

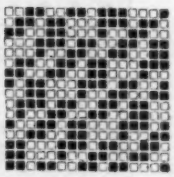


FIG. 703

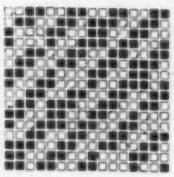


FIG. 704.

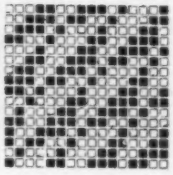


FIG. 705.

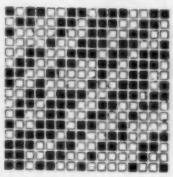


FIG. 706.

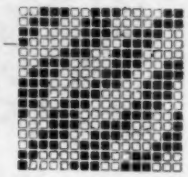


FIG. 707.

weave. These alterations are made according to a previously selected motif. Examples are shown at Figs. 674 to 740.

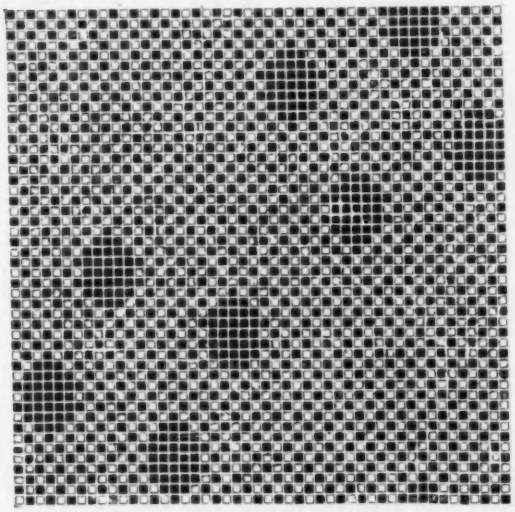


FIG 692.

In Figs. 674 to 693 the ground is a plain weave. Fig. 683 is adapted for a cloth dressed: 2 worsted, 2 silk. In Figs. 683, 691 and 693 points are both added and removed to develop the design. In drafting these weaves the motif is first painted on the draft and the ground weave and floats then inserted to correspond.

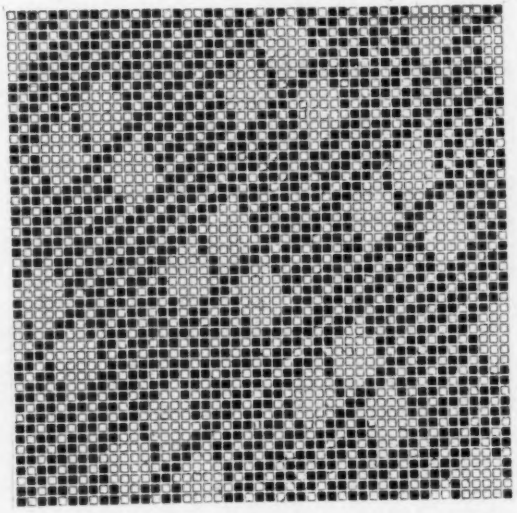


FIG 708.

(To be continued.)

NOTES ON TEXTILE FIBERS

BY DR. LOUIS J. MATOS

ANIMAL HAIRS

The true hairs used in the manufacture of textile fabrics, differing in their structure from wools, are few in number. The most important are cow hair and camel hair. The former is the most important, and is used in immense quantities. Under the broad name "cow hair" it is fair to presume that there are included a number of commercial hairs obtained from other animals, but as they answer the same general requirements as cow hair, they are used as such.

There are other hairs somewhat resembling wool and which are used to a large extent, chiefly in the manufacture of carpets. These hairs stand on the border line between wool of the sheep and a perfect hair and are obtained from the goat. Both cow hair and goat hair have a well marked central core or lumen, that of cow hair being apparently filled with innumerable color discs, while that of the goat appears filled with hollow plates or discs of such a shape as not to be confused with the former.

Another very important hair is that obtained from a distinctive goat—the angora—and known in commerce as mohair. This fiber is remarkably smooth and of a peculiar silky luster. The most peculiar characteristic is the apparent absence of any marked lumen, but there are well marked longitudinal markings that are always present on this fiber, but rarely found on any other. The scales on this fiber are marked, but they are so firm and rigid that they have little or no felting powers. Mohair is used for many purposes, but it lends itself admirably to the manufacture of pile fabrics, and is much used for heavy plushes.

The markings alluded to and seen on the mohair fibers are also seen in camel hair, but in addition is also seen a distinct lumen, together with the color plates. The hair is very coarse, being in fact, one of the coarsest fibers used in the industry. It is needless to

go into an exhaustive description of these fibers, there being nothing requiring special mention; the method of examining them is essentially the same as for wool. Their technical application offers no serious difficulty except perhaps in either bleaching or dyeing. Hairs possess natural color, and owing to the somewhat horny nature of the fiber itself, is difficult of penetration by either gaseous or liquid bleaching agents, while white or uncolored hairs, owing to the same horny nature, offer marked resistance to the penetration of dye solutions. While it is not impossible to bleach or dye these fibers, yet the methods to be employed are so drastic that the fiber itself is disintegrated and consequently weakened. It is needless to remark that the fibers above mentioned are used chiefly to adulterate other mixtures of good healthy wool, thereby lowering the initial cost. When they are made into yarn by themselves such yarn has little strength and requires the binding influence of long, flexible, and elastic wool fibers. The preliminary treatment of hairs at the mill, though usually simple, yet requires some attention to details, the cleaning of hair, owing to the low relative cost compared with wool is entrusted to men having but little or no experience. This is not as it should be, for unless the hair to be used is thoroughly cleaned and scoured and freed from all dirt, it will cause complications to arise in subsequent operations through which the mixed fibers will ultimately pass. Much of the hair now used comes into the market containing a great deal of lime which, if not previously removed, entails a loss of great quantities of soap in the scouring. Not only does the soap lose in scouring efficiency, but the lime soap formed in the scour bath becomes attached to the fibers so that it is practically impossible to remove it.

The preliminary treatment of hair should always commence with a weak sal soda wash, followed by a rinse, finally subjecting it to a scour with soap in the usual manner, the result being that the hair fibers will not only be thoroughly clean, but they will be materially softened in texture.

It is customary to class silk as of animal origin. There are many kinds of silk, the most important being obtained from two broad classes of silk-worms. We are informed by tradition that the propagation of the silk worm originated with the Chinese, and we have no grounds for doubting it. It was not until 600 years after the birth of Christ that the Emperor Justinian obtained from the Chinese the secret of producing this fiber. The story of how the secret was obtained reads like a romance and the following story will serve to illustrate to what extent foreigners were put in order to obtain the desired knowledge.

Two monks came to Pekin, remaining several years, China being at that time somewhat indulgent in the matter of religion. These monks, taking advantage of this tolerance, were really on the ground for the purpose of making discoveries in the field of silk production, and after obtaining sufficient information, with eggs of the silkworm concealed in the hollow staffs which they carried after the manner of the pilgrims of those days, they returned to Constantinople, when in the presence of the emperor they broke their staves, and emptied the contents into the lap of the Empress Theodora, from which time the spread of the industry to Italy, France, Persia, and other European countries can be dated.

SETTING OUT SCREW HOLES FOR NOBLE COMBS

BY JOHN BROWN

Wherever machinery is employed it is of the utmost importance to have a standard to govern all measurements used in any one class of machine. It not only saves calculations, but in the case of circles of combing machines it saves a lot of time, especially where a spare set of circles is not kept for each machine and the circles have to be changed for various reasons. Although the circles themselves are all of one size, yet each maker may have his own standard, both of radius of screw line, size and thread of screws. If the racks are built by different makers, or if through any cause the lines are not alike in all the machines of one class, the best thing to do is to decide upon a gauge and to make this the standard for all. The

best position for the screws in large circle of Noble's is as near the center of the brass base as possible. This keeps the circle firm and prevents springing when working. In nip and square motion combs the screws, where loose circles are used, are nearer the pinned part. Even in cases where changes are made in the combs from Botany to long wool, the same standard can be used. This

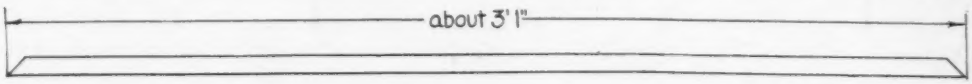


FIG. 1.

will mean a few pins being knocked out where the screws fit, but this is a slight matter, as it only occurs in the coarser rows where the function of the pins is more to separate and hold the fibers, while the actual clearing is done by the finer rows of the circle.

Three tools only are required for setting

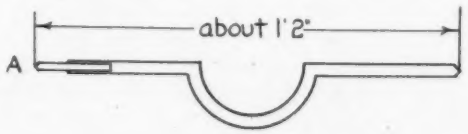


FIG. 2

out. The gauge, Figs. 1 and 2; the scriber shown at Fig. 3, and the trammel or divider, shown at Fig. 4. Fig. 1 is made from 3/8 by 1/4 inch wrought iron, carefully filed down at each end to a triangular point, and from 46 to 47 inches long, to come outside of a circle pinned over 1 5/8 inch; for one small circle, about 14 inches long, either straight or bowed as shown at Fig. 2. A is a loose sliding end, not necessary after the standard has once been decided upon.

Fig. 3 seems more complicated, but in reality is very simple and can be easily made and consists of a scribing bar with slot hole nearly its whole length. At its extreme point is the scribing pin, D. It is made from one inch wrought iron champered to to 3/4 inch on the top side, shown in the shaded edge, A, Fig. 3, so as to fit firmly the guide, B, Fig. 3, which has raised lugs in the center filed to slide easily on champered sides of A, to which it is fixed by set screw, E. It will be noted that one side of B is filed to a radius of 18 inches so that it just fits the outside of small circle, while the lower side is filed to a radius of 45 inches. This fits the inside of the large circle rim of Noble combs, and is adaptable to the outside of the rims of Lister or square motion circles. It can be turned around by simply taking out the set screw, E, and reversing. The two lugs, C, serve to steady the scriber when in use. Fig. 4, the trammel or divider, is a plain rod about 18 inches long made from 1/4 by 3/4 inch wrought iron with two marking points, one fixed and the other sliding, so that it can be used for dividing scribe line on either large or small circles.

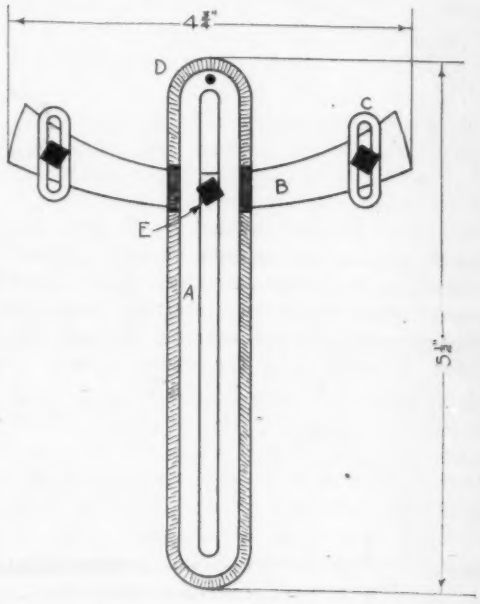


FIG. 3.

To settle the exact size of scribe line to be used as a standard, this is best obtained by making the gauge long enough to be about 3/8 inch clear of the pins in the large circle. Take the scriber, A, from the steadier, B, and fix it on a piece of thin steel fastened to

a bracket. This can be attached to a cross bar in the steam chest or any other convenient place, Fig. 6. By pressing down the marker four trial marks can be made by turning the rack around, adjusting the scriber until the marks correspond with the length of gauge. When this is accomplished turn the rack steadily, pressing the marker at the same time and the scribe line is completed. Next set the markers apart, a distance equal to the diameter of the scribe line multiplied by 22, divided by 7 and again divided by 12, the number of screw holes in the circle, say about 12 inches. Make a good center punch mark for a starting point, then measure off. If not correct the first time, alter the length of the trammel until the twelfth mark comes on the first center punch mark. Then mark around in the opposite direction so that at each point the lines bisect each other, Fig. 5. Punch each mark distinctly, then with a compass draw a circle around each punch mark. Then slightly mark this circle at four equally distant points. It can then clearly be seen whether the drill keeps in the center. This is a small detail, but worth attending to. The rack is now ready for drilling and tapping. One-quarter inch screws with beveled heads are strong enough. The same process follows in marking circles, except that the circle must be turned over with pins downward, and the scriber put together, as in Fig. 3, with the edge of the steadier resting against the inside of the circle of the Noble comb or outside on square motion or Lister combs.

If these instructions are carefully carried out, all the circles from one firm will be available for any machine, and the time previously spent in filing out holes and dodging to make a good fit will be saved. Where circles or racks have been previously bored to other gauges, the plugging up of two or three of the old holes with lead will prevent any uncertainty as to which are the right ones to use.

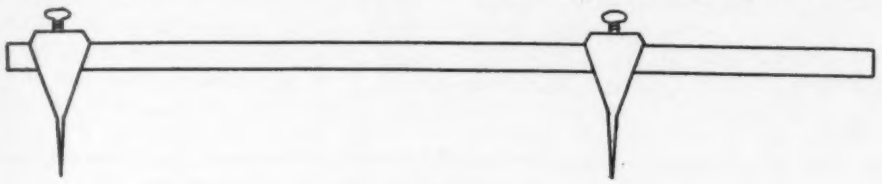


FIG. 4.

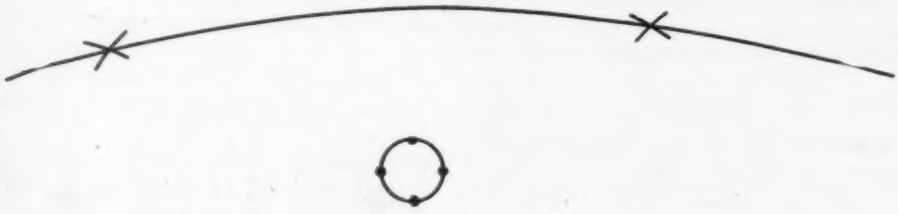


FIG. 5.

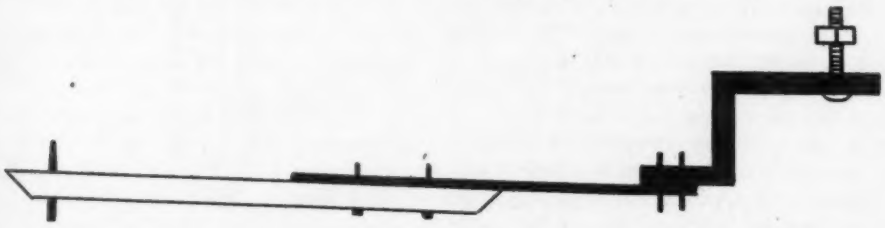


FIG. 6.

ENGLISH NOTES

By Our Regular Correspondent

The Bourbon & Cassier process for producing by artificial means a raw cotton of fine quality can hardly be expected to survive the shattering exposure. The inventor Bourbon confesses to having placed beforehand in the condensing tube of his apparatus the cotton that he professed to manufacture. At the same time he denies that the cotton was placed there for any other reason than to forestall possible miscalculations. The Frenchman Bourbon sold the rights to the Belgian Bloch who parted with them to the Italian Crespi for $10,000 down and a promise of $800,000 later. Crespi entered into arrangements with a Manchester firm to sell the system for $2,000,000 and perhaps in the course of time the process would have been offered to the investing public at a still higher figure. The details have their interest as evidence of the marketable value of a chemical process for manufacturing a satisfactory substitute for natural cotton. How the chemists are going to give cellulose a fibrous shape and how they are to do it for less than the low cost at which cotton can be grown is their affair entirely. Granting the possibility of the feat, there is money to be had for it, but it is well to remember that not all methods of making the immnensely higher priced article, artificial silk, are remunerative to the proprietors or serviceable to consumers.

* * *

The influences which weighed with Congress in its rejection of the bill to compel the name of the manufacturer to be stamped on all fabrics are unknown. Certainly there is no room for such legislation here, if only because of the difficulty of saying who does manufacture a large part of the production. Who is the manufacturer of a cotton piece with a history like this: Yarn spun by A and sold to the weaver B, who sells goods grey to converter C, who has his own designs and gets them executed by calico printer D or commission finisher E? Presumably the logical (and absurd) course to take would be to stamp every yard with the family history of the goods. Naturally there would be one law for fabrics and another for the garments into which the cloth has ultimately to be made, but it is every day experience that more deceit is exhibited in selling clothes than selling cloth. Dealers are at pains to conceal their sources of supply and they certainly would not welcome a compulsory disclosure. Then, as the largest part of British textiles are made for foreign sale the identification would be forced principally on strangers.

Much more is to be said for voluntary than for compulsory trade marks and one of our High Court judges has been speaking highly of them. Lord Justice Fletcher Moulton described trade marks as the "curse of the fraudulent trader" and as things which "put a higher premium on commercial honesty than anything he could think of." The judge was the leading authority on patents and marks before his promotion and he believes that "unlabeled goods will be driven out of the market," which branded goods will ultimately monopolize.

* * *

So far as can be ascertained, about one-half of the woolen and worsted fabrics produced in this country are for export and one-half for domestic trade. More woolens than worsteds are produced for export and the foreign demand for carded woolens has immensely increased since the beginning of the century. In 1900 the shipment of woolens was 50 million yards and 98 millions in 1911. In 1900 the export of worsteds and stuffs was 102 million yards and 78 millions in 1911. It will be seen that carded woolen is not a declining industry in Great Britain, nor on the other hand is worsted, for the fall in worsted yardage was met by a substantial rise in values. Worsted has been making evident progress in the domestic trade. A large part of the present demand for merino tops and yarns arises directly out of the rage for blue coats and skirts for women's wear. The mercerizing process, with the consequent substitution of all cotton linings and the introduction of artificial silk into light fancy goods, has removed a number of products from the worsted classification to the cotton. The manufacturer is no worse off for the

change, but statistical appearances are against him. In America the requirements of the wholesale clothing factories are the main prop of the worsted market, but it has to be realized that in England the case is the very reverse. The wholesale suit-makers' stock can be searched for worsted samples almost in vain. The raincoat makers, and at present the ladies' ready-made costume makers use worsted, of course, but wholesale costumes and skirts are more largely made from carded woolen cloth. The explanation may be sought in the respective prices of the two classes of goods.

* * *

The average Yorkshire worsted spinner rests unconvinced of the economy and advantage of electric driving for his purposes, but electricity makes a little headway even in this connection. The large firm, Robert Clough, of Keighley, has been sufficiently encouraged by experience in their new mill to substitute current for steam in its three older sets of premises. As the example is the newest, a few details may not be out of place. The signal feature of the installation is the retention of the old line shafting, but the power is transmitted to them not by belt, but by chain. The shafting is run at 160 to 190 r. p. m. for combing, drawing and spinning and is turned by induction motors of 100 to 150 b. h. p., making 500 to 600 revolutions per minute. The 200 h. p. engine and the 50 h. p. water turbine have been scrapped and a turbo-electric plant has been put in their place. It is fed with steam at 160 lbs. pressure and 150° to 200° F. of superheat. Current is delivered at 525 volts and 50 cycles. This is said to be the first instance in which the chain drive from motors has been adopted throughout in an English textile mill and it has been used to minimize the difficulty of converting an awkwardly shaped set of premises.

* * *

Farmers are so ready to grumble that expressions of satisfaction on their part count for a great deal. When the president of the (English) National Sheep-Breeders' Association says that the trade is getting on a better basis and that the future is bright, it is impossible to refuse to believe him. The remarks were the introduction to a lecture by Alfred Mansell which might very well have been entitled, "How Sheep-farming Pays." Sheep pay, as has been often said before, not only in wool and mutton but in the restoration of the soil. In skilful husbandry the yield from the flock is always larger than can be traced directly upon paper. How much larger depends upon the case. In a poor distrist of Somerset Mr. Mansell finds farmers depending for two-thirds of their profits on the sale of wool and of sheep and the last third includes the gain from sheep residuals. Hill farms in the North of England which for want of hay would only carry 30 or 40 cattle, maintain a thousand head of cheviot or blackfaced sheep. These sheep support a rental of $1,250 to the landlord, an income of $500 to $750 to the tenant, local taxes of $100 to $125 a year and the wages of two shepherds or $500 more. They bring in thus some $2,625 per annum and without sheep that land would go out of cultivation. Mr. Mansell had his eyes on North America in saying that as virgin fertility was exhausted farmers would realize that they had to replace the lost nutrition by a proper use of sheep chosen for their suitability to the surroundings.

* * *

While the British Cotton-growing Association works only within the political limits of the Empire, spinners belonging to the Federation make a point of encouraging cotton growing any and everywhere. Sir C. W. Macara, at any rate, would seem to admit that there is generally more chance of increasing an existing field than of starting a new one. His precise words were that all experts agree that it would be far easier to increase the Indian crop by a million bales than to increase production in any other British dominion by one-twentieth of that quantity. The argument is one which might be extended to the United States, but the old objection remains against relying too largely on one source. The Government of India plainly feels its own responsibility in urging cultivation to raise a crop that is liable to severe fluctuations in price and will be more likely to treat cotton as one of several crops of any of which more might be raised. Bom-

bay mill owners have shown some disposition to secure assurances that any additional fine cotton raised in the provinces of Sind shall be theirs rather than Lancashires'.

* * *

Napoleon I lent a needed impetus to the Lyons silk trade in one of its dark days by requiring official uniforms to be made of silk. The patronage of royalty has been sought for British silk and not without advantage. The coronation of the present king was one occasion on which royal influence was used in favor of British-made silk and both king and queen have taken a close interest in the small and not very lively British Silk Exhibition lately held in London. A round of royal visits to Yorkshire mills has followed to see carpets made by Crossleys of Halifax, worsteds by Martin's, of Huddersfield, and cheap woolens by Stubley's of Batley. There have been royal visits to isolated mills in past times, but nothing like this comprehensive survey, which at least promises to bring the industries and their products into greater esteem with the public. The three mills are among the best known of their kind so that there is little need to say more about them. John Crossley & Sons were the one to buy Bigelow's invention of the pile carpet loom. Martin Sons & Co., the leaders of the fine and fancy worsted trade, was founded by Patrick Martin, an Irishman who worked formerly for the well known Clay's of Rastrick. George & James Stubley, who lived to see their firm become the principal manufacturing buyers of woolen rags, started trade in 1850 with $750 in hand.

* * *

Attempts to induce Huddersfield manufacturers to exhibit at San Francisco in 1915 have not been kindly received. For one thing Huddersfield is persuaded that the next tariff will still keep most of the productions of the town out of the market. Her carded woolen, or Colne Valley goods have their price as the principal attraction, and a popular exposition is not a suitable place for ticketing goods with wholesale prices. Worsted manufacturers have a fear that a display would be better for their competitors than themselves, and finally one of Huddersfield's most trusted advisers declares that the city likeliest to derive advantage from the Panama canal is not San Francisco, but Los Angeles. In the circumstances the spirited efforts of the exhibitions branch of the British Board of Trade seem unlikely to be fruitful, although the Huddersfield displays at the more recent Continental international expositions have been on a good scale.

* * *

A dyer who has been busy with reorganization has successfully cut down the number of colors in use from sixty to twelve and is profiting accordingly in buying and avoidance of dead stock and waste. His foremen are being encouraged to work with blue, red and yellow as primaries, black to darken tones and a few colors like rhodamine and violet to "pinch" up the goods to the required fineness of shade. Some of his men worked habitually with seven or eight colors to produce any fancy shade and entertained some vague hopes of thereby getting the best properties of each. The new method has the virtue of simplicity and it dispenses with the use of formula in most cases. Recipes had become the curse of this dyehouse, for one recipe named one color and a different recipe another, whereas it has proved perfectly possible to make one color serve the place of five. When the clearance was made part of the old stock from the shelves was mixed up to make a few hundred pounds of useful blue and the rest returned to the color makers for them to buy at job prices. The initial sacrifice has been quickly recouped, for the work is done with more quickness and certainty, and this dyer is not likely to buy four separate yellows and nearly twenty different reds in future.

* * *

The lithographic process of calico printing, in which cloth is printed in oil colors on rotary "set-off" machines, similar to those used in lithographing posters, has been carried on for a year or two in a comparatively small works near London. The printing done is largely cheap work in simple designs for the export markets and it is understood that the prices obtained leave a fair profit. The re-

sults, particularly in respect of the brightness of color, have been materially improved since the start. The machines run off eighty yards a minute and the color needs no fixing such as is necessary where the usual paste-colors are employed. The goods are run over a cloth-breaker to remove the cakiness of the printing and the finished result satisfies reasonable requirements as to permanency. Whether the printing is actually cleaner than the best engraved roller work may be a matter of opinion, but creditable results are got by printing simultaneously in four colors. A plant of 25 machines is to be put down in Lancashire and a meeting of calico printers has been called to consider the new situation created by this competition. Report has it that the established printers came to the conclusion that they had nothing serious to fear from the process for the next seven years. This general opinion does not agree perfectly with expressions used by some individual printers. It is of course apparent that this litho or transfer system is more expensive in color than the regular process and what is lost in this way has to be regained in saving upon the usual costs of operation. A similar process was perfected up to a certain point in France, but at that time all lithographing was done on flat-bed machines and the fatal weakness was the want of continuity. Now that lithographing can be done from curved metal surfaces the old difficulty does not exist and cloths as wide as 56 inches and with a repeat of 108 inches are treated with facility. It is stated on good authority that the effect is all the better if the lithographed cloth is left hanging in air for three weeks. Probably the success attained so far will stimulate further attention to the possibility of printing in oil colors, and in this regard it might be well to notice recent improvements made in printing three-color blacks upon paper on rotary letterpress printing machinery. One of the stock claims for the letterpress process of printing paper is that brighter and cleaner effects can be got than from the plane surface and the opaque and fatty pigments used by lithographers.

THE SOUTHERN COMMERCIAL CONGRESS

The plans for the fifth annual convention of the Southern Commercial Congress to be held at Mobile in the fall of 1913 contemplate making it an international event. Secretary Knox has addressed a letter to the American diplomatic and consular officers in Latin-America giving information regarding the Mobile convention and directing them to ask from the governments cooperation for the purpose of bringing the republics of the Western Hemisphere into closer and more sympathetic trade relations. It is intended to have the Latin-American governments install exhibits of their products at Washington at the time of the Mobile convention, along with products from the sixteen States represented by the Southern Commercial Congress.

DAMAGED YARN

Editor Textile World Record:

I am sending you under separate cover a piece cut from a skein of cotton yarn containing a hole which runs nearly through the skein. We have experienced similar trouble before and supposed it was due to portions of the yarn protruding from the bale and being damaged in transit. In the present case the hole is small and runs directly across the threads, cutting them sharply, leaving a deposit of what appears to be dirt and is on the end of all fibers down to the bottom. Damage in transit would hardly produce such peculiar results and I would greatly appreciate any information you can give us. Jersey (2043).

The case seems to be one for an entomologist. Examination of the sample under a glass very powerfully suggests that the damage has been caused by some grub which has bored its way through thread after thread of the skein, leaving behind it a trail of animal deposit. The yarn seems to have been bitten and not cut and the gummy, clay-colored matter which has been taken for dirt agglutinates the ends of the broken fibers. Clearly the brown matter is not earth or clay. If the damage is of frequent occurrence it will be advisable to protect the yarn better against moth, either by use of wormwood or some other specific.

Regent.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

PRESSES FOR UNION SUITS

Editor Textile World Record:

Kindly let me know what size press papers are used for men's knit union suits. We are using at present a 32 by 22 inch board for men's ribbed shirts and drawers, but think they are too small.

Weymouth (2055).

Some of the largest manufacturers today are finishing knit goods over a hot roll laundry machine. This has a roll take-up connected to it with a spreader which finishes the cloth and sets it to the size wanted. The cloth is then cut into garments and finished, when they are taken to the press and pressed and folded without boards. This process gives the garments a very good finish and looks better than the old way and they can be finished quicker. Two of the largest manufacturers of union suits today are taking the goods as they come from the knitting machines and cutting them into lengths long enough for the different sized goods, laying them out between cardboards that are from 3 to 4 inches longer and 2 to 3 inches wider than the goods themselves. They are then put into a flat steam press which works with an eccentric cam opening and closing the press, giving the operator time to slide the boards in and out without stopping the press. The goods come out very well pressed. Either one of these operations is an improvement over the old method. Denbigh.

. .

Another method of pressing union suits, which is used by a number of manufacturers is with the Hoff-Man steam buck press. With this press there are no boards needed. The garments are pressed full length or folded as they are to be put into the boxes. It gives a fine finish. There is a pressing surface of about 30 square feet. The head and buck of the press are both heated by steam so that when under pressure the garments are heated from both sides. The steam and pressure are applied simultaneously. It can be used, however, as a hot press without steam, by simply closing steam valve.

REMOVING SIZE FROM DRESSER CYLINDERS

Editor Textile World Record:

We have been trying to remove the baked-on size, starch and glue that has accumulated on warp dresser steam cylinders. We have used hot water, damp cloths, vitriol and soft soap, but all to no purpose. Will you kindly tell us how to overcome this difficulty? Anisquam (2058).

I do not know of anything that will take the size off the face of the cylinder that would be any better than what "Anisquam" has already been using. It is probably washed off the cylinder all right, but when the slasher is started up it comes on again. The question is not so much what will wash the size from the cylinder as what will prevent it from coming on. No yarn will stick to the cylinder if the size is properly handled. Of course there are ingredients that can be put into the size that will cause the trouble, such as glue or some of the stuff they are putting into the size when they cannot find any other place to put it. To prevent it from sticking to the cylinder see that the size is thoroughly boiled and put in only enough tallow to keep from foaming. If a lot of tallow is put in it will bake on the cylinder. It is a mistaken idea that tallow is of any benefit to the yarn. It is used only to keep the size from foaming. Keep the size at not less than 200° or 210° F. Put the thermometer in to see that it does not go over this. If the size spatters to the sheet keep it lower in the box. Keep the immersion roll just half way down in the size, and

see that the blankets are in good shape. I make the blanket on the finishing roll with three yards of coarse and three yards of fine cloth. The blanket on the other roll is made with six yards of coarse cloth. Care must be taken to boil the size. If the sheet is heavily sized run the slasher slower. I should boil 1 1/2 to 2 hours for potato starch. I have stopped the size from sticking to the cylinder inside of fifteen minutes by following the above directions. Boiling the size well in the box has overcome the difficulty also. I have known too much tallow in the size to cause the cylinder to cake all up with lint. I have reduced the quantity of tallow in the size and boiled the size hard and the stuff has come off in sheets without any washing.

Minard.

OPERATING A WORSTED MILL

Editor Textile World Record:

What amount would you consider a good day's turn out in a worsted mill spinning say 2/14s yarn, 44s quality, where 35 hands constitute the staff? This force is divided as follows: Four girls in drawing capable of handling 1,200 pounds per day; three spinners on 9 sides, who are able to put the amount through; four doffers; one bottom setter, 11 girls in twisting and 1 bobbin setter, 5 reelers, 2 inspectors of yarn, 1 superintendent, 1 overseer, 1 oiler and 1 band boy. Linton (2031).

The staff seems to be sufficient, with the exception of the drawing department. We will first take up the speed. Though the amount of stock put through the gill boxes may vary, the fallers in first boxes must not drop at more than 300 per minute (double screws) or constant breakages will be the result. At the other end, "Linton" cannot run the spindles in the spinning frame at more than 6,000 to 6,500 without great variation, which is fatal to good spinning. Although these two factors, the fallers in the gill box and the spindles in the frame, very rarely enter into the various calculations used in drawing and spinning, yet they do in fact determine the speed at which the machinery may be run. The speed for all the intermediate processes must be so regulated that they can keep a lead on the work turned out by the gills.

The processes of drawing varies in different mills when dealing with the same kind of stock. The plant referred to is no doubt laid out as follows:

Process.	No. and Description of Boxes.
1	Two double head can gill boxes.
2	Two 2-spindle gill boxes.
3	One 6-spindle weigh box.
4	Two 8-spindle finishers or 1 sixteen 1st finisher and 1 forty-eight spindle 2d finisher.
5	Three 48-spindle roving boxes.
6	Five 200-spindle cap spinning frames.
7	Four 200-spindle cap twisters.

If this organization gets through 1,200 pounds per day the output is good. The cap twisters, if not keeping fairly well up, may be run up to 7,000 revolutions per minute. Much time is lost in starting all twisting sides at once. This is not necessary except in very particular work, as in cases where twisting is for spools and the work is so regulated that 2 bobbins will just fill one spool. Except in such cases, it is by far the best plan to start the sides in sections.

As for reeling, a very satisfactory system is in operation in many mills. Each reeler's work is kept separate and pay is regulated by the number of gross each individual reeler has turned off. In questions like the above it is a great help to have some idea of style, number of spindles in doffer boxes, and whether the cap or fly is used in spinning and twisting, and also the pitch of frames.

John Brown.

BISULPHITE OF SODA FOR SOURING

Editor Textile World Record:

In the bleaching of muslins, we use a weak solution of sulphuric acid to kill any lime left in the cloth. We understand that bisulphite of soda can be used instead to better advantage. Will you please give us any information you have on the use of bisulphite of soda as a substitute for sulphuric acid under the conditions named.

Manix (2000).

I know of no bleachery using bisulphite of soda in place of sulphuric acid, although I understand a number of yarn bleacheries are doing so. It is my impression that in order to liberate sulphurous acid it is necessary to add the proper equivalent of acid to the sulphite of soda. The usual method, however, in large bleacheries after washing thor-

oughly from the chemic, is to pass the goods through a sulphurous acid solution, which is usually made by burning sulphur in a small furnace, carrying the gas either through water or allowing it to come in contact with water and thus become absorbed.

F. T. W.

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MARKING KNIT GOODS

Editor Textile World Record:

Can you give us any information in regard to marking knit goods that we have to bleach? We have never found a satisfactory method of marking the cloth before it goes into the kier.

Salem (1052).

"Salem" can overcome this difficulty by using coal tar diluted with carbolic acid to a consistency of thick cream. This will withstand the bleaching process. It is used with stamps and a pad. The pad is made in the following manner: Get a shallow box the size of the stamp required, put in a layer of thick felt at the bottom, spread over this felt

a thin layer of diluted coal tar, then cover with a piece of rag or waste knit goods. It is then ready for use. Press the stamps on the top layer of cloth until the tar comes through on the stamp, then use it on your goods. The top cloth is to prevent too much tar from getting on the stamp and blurring the marks. Care should be taken to keep the stamps clean, as the flakes from the goods stick to the stamp and thus makes the stamping thick and blurred. I have blocks made of different shapes and sizes, with oval, triangle or diamond outlines for different purposes and the letter or figures are made on little blocks of wood which are inserted in the larger block. A thumb screw on the side holds them in place. A sample of this work is shown herewith.

Dulcimer.

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KNITTED NECKTIES

Editor Textile World Record:

Please give me information regarding the knitting of fancy neckties like the enclosed samples, and state what knitting machines are used.

Mohegan (2054).

The reply to this question appears in the form of an article in this issue.

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COST TABLE FOR MANUFACTURING SWEATERS

Editor Textile World Record:

Please give us a cost table for manufacturing men's sweaters, using a basis of 4/20s quarter blood worsted yarn, working with power machines on the body and hand power on sleeves.

Grosser (2048).

I can give only outline table for manufacturing men's sweaters, as the cost for various items varies in different parts of the country. In a mill with a capacity of 12 dozen per week of shaker coats, the overhead or fixed charges would be about 30 per cent. of the selling price, which, added to the cost of manufacturing, gives the cost of the goods. These overhead or fixed charges includes all salaries and wages, general expenses, repairs, power, light and incidentials, trade discounts, etc. For an example I will take a size 40 sweater coat knit from 4/20 worsted weighing 18 pounds per dozen.

18 lbs. of 4/20 yarn at 85c. per lb.	$15.30
4 ozs. waste	.22
Winding 18 lbs. at 1c.	.18
Knitting sleeves, per doz.	.75
Knitting bodies, per doz.	.50
Knitting cuff, per doz.	.20
Knitting pockets, per doz.	.25
Knitting trimming, per doz	.15
Hand finishing	1.35
Mending	.25
Sewing on trimming on machines	.35
Sewing on buttons on machines	.25
Making button holes on machines	25
Boxes	1.00
Buttons	1.00
Thread	.15
Folding and packing	.05
Total	$22.20

PLAN OF A BLEACHERY FOR NAINSOOK

Editor Textile World Record:

Please give me a plan for a bleachery to bleach and finish 20,000 yards of 39 inch grey print cloth per day, the goods to be finished 36 inches wide in a nainsook finish only. I would like to have you state the machinery required and give a sketch showing the size of building and the location of the various machines.

I would also like to have an estimate of the cost of equipping such a plant of the cost of bleaching the goods, including labor, material and all other charges. Maximus (2056).

A plant to bleach and finish 20,000 yards of nainsook per day will be a very small plant indeed. Presuming the cloth weighs 4 yards to the pound, the general width of cloths of that weight will give only 5,000 pounds per day, or just about enough for one kier per day with a caustic bleach. If a lime bleach is to be used it will be necessary to have two kiers. If the lime bleach is to be used, space will have to be left for a second kier which could be placed alongside of the one shown in the sketch. I would advise "Maximus" to install a 3-ton kier if only 5,000 pounds are to be bleached. If the goods do not quite fill the kier wooden blocks can be used to block up the remaining space to prevent the cloth from turning over during the process of boiling.

The machines required for the plant will be as follows: Grey Room: One sewing machine, 1 plaiting down rack for laying the cloth in piles. Bleach House: One washer, 1 grey sour machine, 1 kier, providing the caustic bleach is used, 1 large washer, 1 chemic and 1 white sour machine, 1 chemic mixer and pits for ageing the goods. Mangle and Starch Room: One 5 or 7 bowl water mangle, 1 starch mangle with 2 or 3 bowls. Drying Room: One set of dryers wide enough to take the goods. Finishing

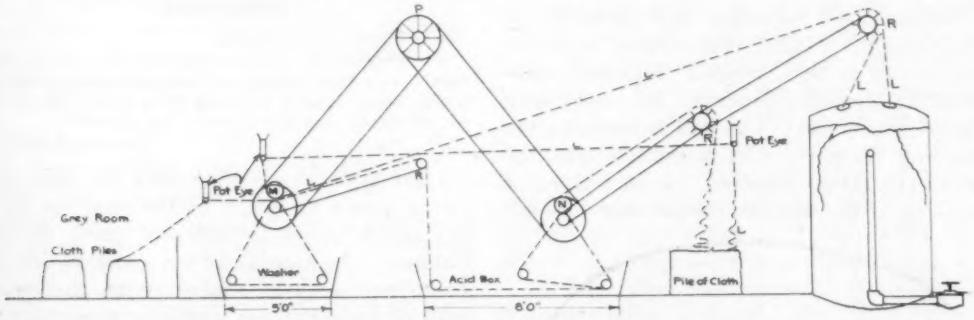


FIG. 1. FRONT VIEW OF KIER. M, WASHER ROLLS. N. ACID MACHINE ROLLS P, PULLEY OR SINGLE LINE OF SHAFTING. R, REELS DRIVEN FROM MACHINES. L, DOUBLE END OF CLOTH.

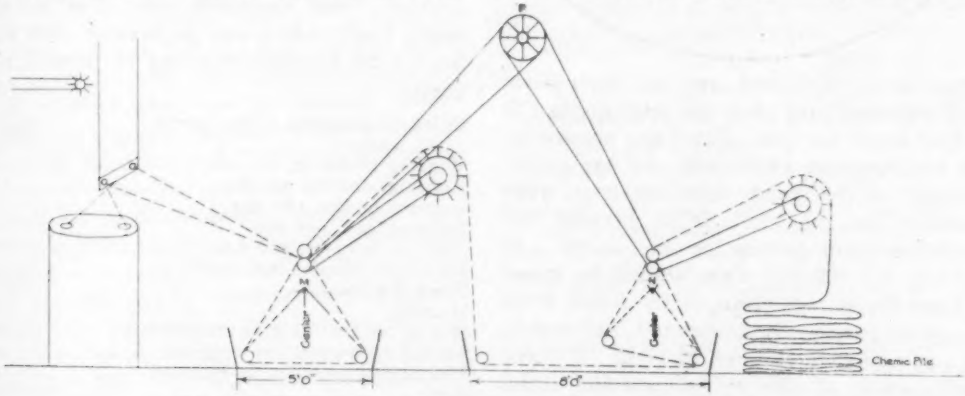


FIG. 2. REAR VIEW OF KIER. M, WASHER ROLLS. N, CHEMIC MACHINE.

Room: One sprinkler, 1 stretcher and 1 calender with necessary number of bowls to finish the goods as required. If a calender is too expensive the mangle could be run dry after mangling out the goods and used in place of the calender. The packing and making-up rooms would require tables, 1

Fig. 1 shows the machines at the grey end of the bleachery. These are placed so that they can all be driven from one line of shafting, the reels being driven from the machines so that when the machine is stopped the reel is stopped, thus preventing damaged places in the cloth.

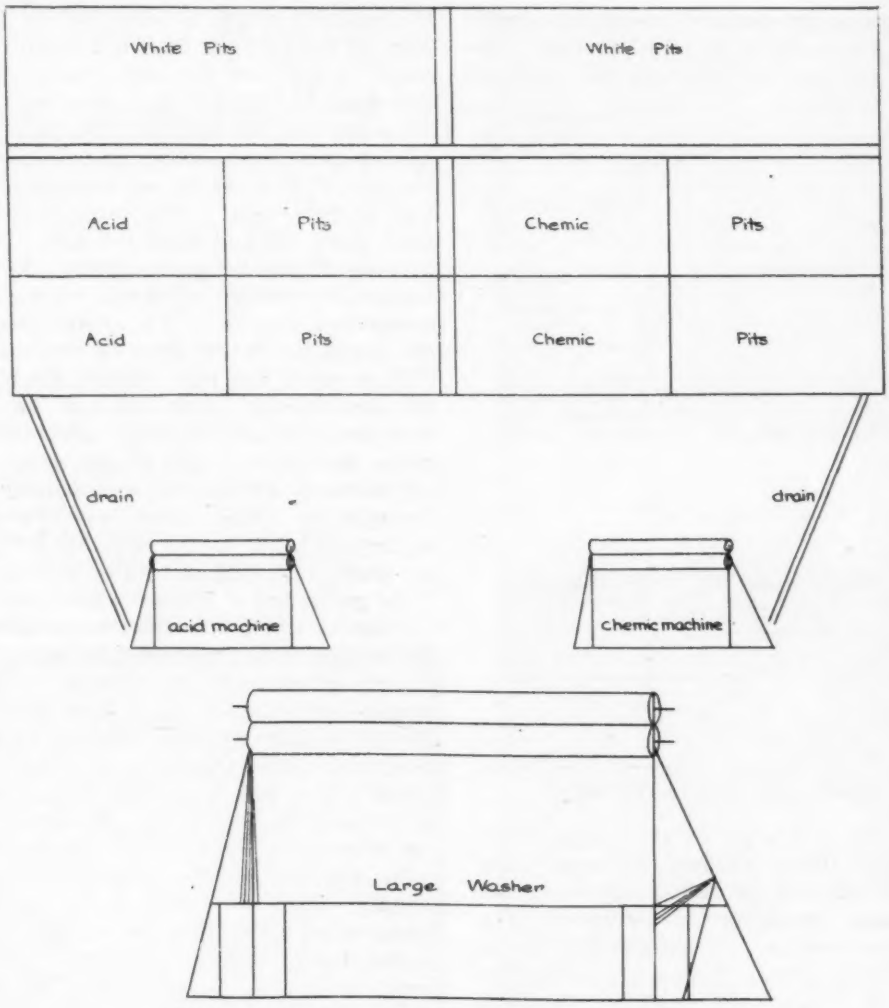


FIG. 3. SHOWING POSITION OF WASHER, CHEMIC AND ACID MACHINES.

yarding off machine or plaiter and probably 1 press, this also depending on the finish and make up of the goods. The foregoing are the machines required to bleach and finish the goods as asked for in the question and do not include the boilers, pumps, starch tubs, etc.

Fig. 2 shows the washer placed between the chemic and acid machines so that the goods can be picked up and passed through the wash and then through either the chemic or sour machine, as shown in Fig. 3. After the goods are ready for washing they are passed through the washer and run into the

pit behind the chemic and sour pit ready for mangling.

Fig. 4 shows the ground floor plan of the mangle room, with a scutcher in front of the mangle. These are placed to facilitate the quick handling of the goods from one machine to the other. The same applies to the machines in the finishing room.

If the goods are to be finished a bright shade, a singeing or dressing machine is necessary. These machines are placed in the

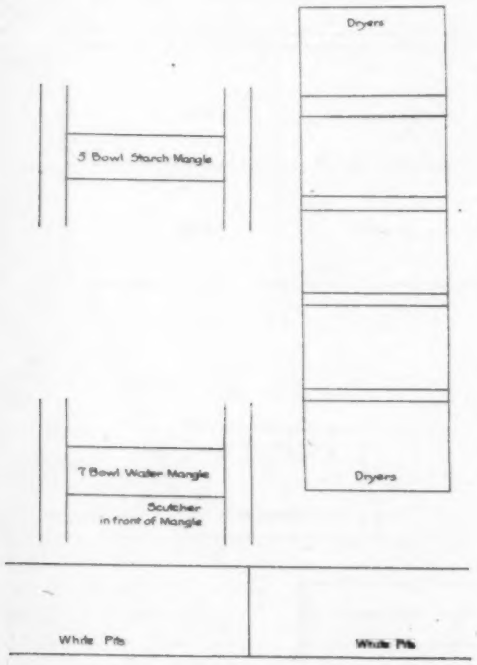


FIG. 4. PLAN OF THE MANGLE ROOM.

grey room as the goods are singed before bleaching. Some finishes can be obtained with the calender by calendering the goods twice and sprinkling in between. This brightness could also be increased by having a roll in the calender heated with steam, but care must be taken not to get the goods too damp when sprinkling or they would come up hard and papery.

When all the machines are in place and the 25,000 yards of cloth sewed together in the grey room ready for bleaching, the goods are taken from the grey room, passed through the washer, then through the acid machine with the acid tested at 2° Tw. They are then piled up and left for three to six hours, after which they are passed through the washer into the kier. While they are being run into the kier dissolve 2 pounds of caustic to each 100 pounds of cloth, run this liquor into the kier and fill up with water to the required height and boil for six hours. Run off the kier and flush it well with clean water to carry off the dirty liquor. While this flushing is being done mix from 1 to 1 1/2 per cent. of soda ash, thoroughly dissolving same and passing the mixture into the kier. Fill up again and boil for another four or five hours. After being boiled this time, draw off and flush the kier. While drawing off pass the goods through the large washer and through the chemic machine at a strength of 1/2° to 1° Tw. Then pass into the ageing pit and let them lie until cleared. Pick up again and pass through the washer and then through the acid at 1/2° Tw. Let them lie about 2 hours so the acid will neutralize the action of the chemic, when they will be ready for washing and delivering to the white pit. When taken out of the white pit they are ready for the scrutcher and mangle, where all the surplus water is taken out. If the goods are of a good quality they will not require drying before being starched and can be taken from the seven-bowl water mangle, passed through the three-bowl starch mangle containing a nainsook mixing suitable for the finish required, and then taken to the dryers. After they are dried a little time should elapse before finishing off, to allow the cotton time to cool off. The goods are now taken to the sprinkler and damped, then to the stretcher and then finished off on the calender. They are now ready for the making-up room where they are yarded off, inspected, folded and packed ready for shipment.

Delco.

LUSTER ON LININGS

Editor Textile World Record:

Please inform us if an ordinary plain calender would give us the shiny finish as per sample enclosed? Apex (2040).

The finish submitted cannot be obtained

with a plain rolling calender, but will require a heated friction calender. The goods should be well sprinkled, wound tight, allowed to lie for three hours, then frictioned under a heavy set, the calendar roll being hot enough to cause steam to arise from the material. The goods are, of course, properly filled prior to the sprinkling.

John D. Street.

DROPPED STITCHES

Editor Textile World Record:

In knitting Richelieu rib 2 by 2, I am troubled with occasional drop stitches from the cylinder needles. How can the machine be adjusted to stop this trouble? When knitting lace stitch goods by the use of long latch dial needles I find that the cylinder needles just preceding the long latch needles are apt to drop stitches. The same machine will knit 2 by 2 perfectly.

Enclosed are three samples showing the defects.

No. 1. Richelieu rib. Notice that the drop occurs on the first needle of the six. This is nearly always the case.

No. 2. Richelieu rib. Notice that the drop occurs on the first needle of the pair on the 2 by 2 part.

No. 3. Lace stitch. Notice that the drop occurs on the cylinder needle just preceding the long latch needle in each case.

What is the remedy? Richelieu (2036).

The drop stitches may be caused by needles with poor hooks. When the cylinder needle starts to rise, after having drawn the

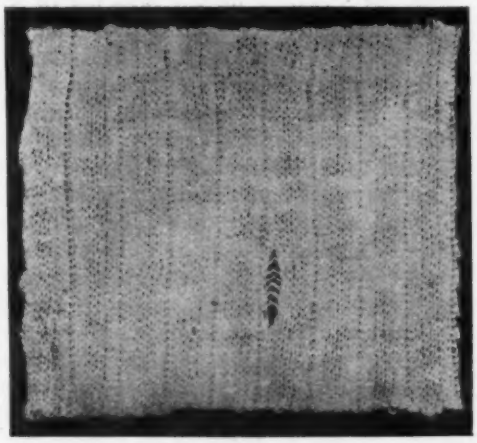


FIG. 1.

loop, the stitch rolls off the front of the hook.

Again they may be caused by the hole of the yarn guide being a little too high, so that when the yarn is being fed to the cylinder needles on the angle, these particular needles which drop the stitches work freely in the slots. The take-up does not draw very tightly on the cloth and the needles have a tendency to drop of their own accord instead of remaining up until drawn down by the

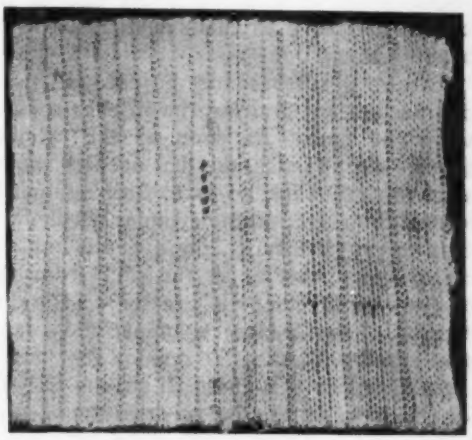


FIG. 2.

stitch cam. This causes these particular needles to miss the yarn. I infer, however,

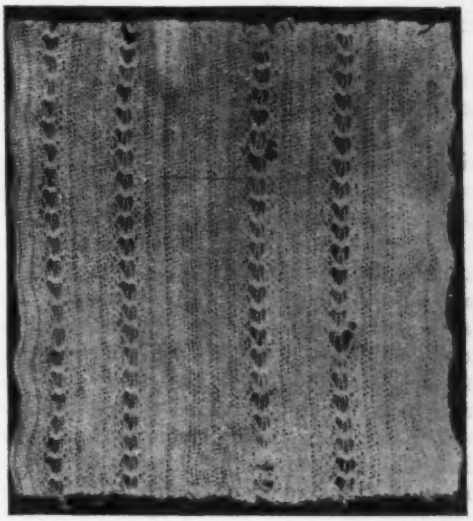


FIG. 3.

that "Richelieu" has doubtless tried different adjustments of the yarn guide without effect, but it may be possible that even when he has set the yarn guide down as low as the

dial needles will permit, the hole may still be too high to prevent the cylinder needles from engaging the yarn on the downward movement.

In changing the position of the hole in the yarn guide, care must be taken not to get it too low. If it is too low the end of the latches are liable to catch in it, resulting in bending them.

The drop stitches may be caused by the dial needles not drawing the stitches back at the right time. As soon as the cylinder needles start to rise, the dial needles should start to draw back, so as to keep the newly formed loop tight on the cylinder needle, and thus prevent it from rolling over the hook of the cylinder needle, as the pull from the take-up on the loops is greater on the dial needles. From a close examination of samples, 1 and 2, I am of the opinion that this is the real one in this case. If so, the remedy for this is to set the dial to draw the needles a little earlier. If this cannot be done without throwing out the proper adjustment of the yarn guide in respect to the dial needles, then the cylinder needle cams should be fixed so the needles will be held down a trifle longer before beginning to rise.

Regarding the lace stitch sample 3, as the drop stitch is always from the needle preceding the long latch needle, which accumulates four courses of yarn every time before knitting, I think that this accumulation of courses is primarily the cause of the dropping. As the long latch needle holds its stitch while four courses of loops are being knit on the other needles, it follows that the pull of the take-up is entirely on the long latch needle stitches. The loops between the long latch needle stitches lie loosely on the needles, the loop just preceding the long latch needle being more so than those preceding it. The cylinder needle thus rises and the loop rolls over the hook. It will be noted in sample 3 that the drop stitch is the one after the fourth course, or when making the fifth course, which is when this preceding loop is loosest on the needle. It may be asked why the loop immediately succeeding the long latch needle does not drop. This is explained by the fact that as soon as the long latch needle forms its loops on the fifth course, it drops the accumulated previous four courses, and the pull of the take-up is immediately transferred to the succeeding loops, preventing them from dropping.

The remedy for this is either to have the lower cam made so that just as soon as the needle has drawn its loop (by passing under the stitch cam) it rises as quickly as possible, or make the cam so as to hold the stitch down until the succeeding ones have made their loops, and the take-up has had an opportunity to pull upon them, thus preventing them rolling off the hook, which they are liable to do, if not held down a sufficient length of time, or if the cylinder needles ascend too slowly. Lafayette.

TESTING FOR SOAP OR ALKALI

Editor Textile World Record:

Would you please inform me if there is any chemical in liquid or powder form that when added to waste liquor from washing machines will determine any trace of soap or alkali?

Atwood (2038).

The testing of wash water to determine whether it is free from soap or alkali is not difficult, but in order to be sure of one's results it becomes necessary that the tests be made carefully with properly prepared chemicals. Testing for the presence of soap in any wash or rinse water is best done with a few drops of dilute muriatic acid added to a sample of the water contained in a clean glass. If soap in appreciable quantity is present, the water will become slightly turbid, due to the separation of free fatty acid. If, on the other hand, the amount of soap in the wash water is very slight, the degree of turbidity may be so faint as to be difficult to detect. As most mill soaps always contain free alkali, perhaps the best test is for free alkali, which, if found, is always a sure indication that soap is also present. A solution of phenolphthalein in alcohol (1 part of the former to 500 parts of the latter) is first prepared. It can be obtained at a drug store. Four ounces of this solution will be sufficient for hundreds of tests, as only one or two drops are used for a test. A glass of the water to be tested is taken, and to it is added a drop or two of the phenolphthalein solu-

tion, when, if soap containing free alkali is present, the entire solution becomes tinted pink or reddish according to the amount present.

As the solution of phenolphthalein is very sensitive to alkali, the person who makes the test should wash a test glass thoroughly after each test, and keep it in a place where it may not collect dust. The bottle containing the test solution should have a glass stopper. Beta-Naphthol.

MIXING PARAFFINE

Editor Textile World Record:

How can I mix paraffine or spermaceti with glycerine or gums used for sizing purposes and not have the solution separate when it is cold?

Colfax (2051).

I know of no way to prevent the sizing mixture from separating when cold, except to avoid the use of fatty substances. A thickener composed of sixteen parts of starch, one part of wax, three-quarters of a part of paraffin and one-fifth of a part of spermaceti would not separate when cold, but I should never advise using cold sizing at all. It is unsafe to use any sizing left over from the previous day. It should be remembered that warm or hot size will penetrate better into the interstices of the fabric. The hotter the size, the nearer it is to the evaporation point, which means not only quicker drying, but less danger of "baking-on" of the size. John D. Street.

The proper way to mix the items named so that they will remain in apparent solution in the mass, is to follow a rational scheme of adding and mixing the several components according to the work they are to do. The following rules will be found useful:

1. The size mass must be thoroughly mixed before use, that is to say, all the several additions as made to the size must be well stirred in before the next addition is made, and afterwards, all well stirred together.

2. In all cases where starches or gums are employed, they must be first made into a paste with the proper amount of water to give the right consistency and then boiled for ten or fifteen minutes. This makes the base of the size or finish.

3. Now weigh the paraffine or spermaceti and add it to the hot mass with constant stirring. It will be found best to add it in several portions, as by so doing it distributes more evenly through the paste. Next, add the glycerine by pouring it in a thin stream and with constant stirring.

The one point to observe in compounding sizes is to have the stirring continued during the cooling down. If there is too great an excess of paraffine wax which will not actually dissolve, but does emulsify, it is likely to separate on cooling, and form clots or waxy lumps, which are very difficult to work again into a homogeneous mass.

Berwick.

SCALE FOR KNIT GOODS

Editor Textile World Record:

We have been using an equivalent scale for making our test weights for getting our samples. We have had disputed as to whether this is the proper scale to use in connection with testing out weights of samples, and we would be very glad if you would kindly let us know what scale is used for this purpose by manufacturers in general. What we want is a scale for weighing goods when finished. We base our costs on weighings from scale. Marathon (2049).

If "Marathon" is using a spring balance scale, I think it might not be as reliable or as accurate as an ordinary weight scale.

An equivalent, or computing scale is the quickest. Having the sample to weigh, one can see at a glance what the total weight per dozen is, but a scale on which not only a single garment or article can be weighed on, but also one on which the finished goods in one-half dozen or dozen bundles can be weighed before being boxed or wrapped, is desirable, in order to ascertain whether the goods come up to the required number of pounds to the dozen. Manufacturers have their own ideas as to which is the best scale to use. I have used not only the small equivalent spring balance scale, which showed, when a single garment was placed on it, the actual weight of the sample, but also what the weight per dozen would be.

The other scale was the double beam scale, with a flat part for the upper row of weights on the beam for weighing a single sample, and a lower platform on which one-half dozen or one dozen bundles could be weighed, to ascertain if the goods were of the proper weight. Lafayette.

WEIGHTING KNIT GOODS

Editor Textile World Record:

I enclose sample of fabric knit on a plain circular knitting machine and bleached by the chloride of lime process. Please give me some information regarding the weighting of the fabric. Is it possible to put in 1/4 or 3/8 to 1/2 pound in these goods per dozen and not have it show in the goods when finished or dust out in the process of manufacture? One firm a few years ago put on the market a solution for weighting underwear, but it was not a success and I would like to get some information whereby I can weight this fabric successfully. Whatever weighting material is put into the goods would have to be a material that would not turn dark or yellow after the goods had stood for a while. Macon (2061).

Our English correspondent replies as follows:—The inquiry does not disclose the percentage of weight that it is desired to add, but inferentially the percentage is low. In that case the possible gain from weighting is little and it is clear that any treatment used must be cheap. Whether the gain is worth the trouble and the risk is for the inquirer to judge. Presumably such a sizing as would be useful in weaving would be out of place in a knit fabric in which bulkiness is a desirable feature and it would seem to be simplest to add any weighting compound to the garment after bleaching and washing and before drying. The obvious measure is to use some deliquescent salt to attract and retain moisture in the garment, but the presence of moistness invites the risk of mildew and necessitates the use of some antiseptic to counter that risk. There are objections to the use of most of the mineral salts that could be mentioned. Nearly all of them are irritants of the skin and some are poisonous. Magnesium chloride is named by an eminent chemical firm as the most suitable and it will not be difficult or expensive to make experiment with this. Glycerine is probably too expensive for use. The antiseptics which might be employed are carbolic acid, salicylic acid or thymol. The first-named has a pungent smell to which objection might be taken and of course all of them add to the expense. It is possible that if experiments were undertaken by sizing chemists that new light would be gained and for this purpose a yard or two of fabric should be sent. Whether it is to the advantage of the trade to introduce weighted fabrics is a separate question. In some businesses the introduction of artificial loading has been anything but a blessing. Obviously nobody who has found a trustworthy means of loading is going to rest content with saving 4 to 8 ozs. per dozen garments and excessive loading means trouble more or less for everybody. Weighting has been a curse to the European silk trade, in which 1 pound of silk comes back from the dyer weighing anything between 2 to 5 pounds. Yorkshire worsted dyers and finishers had to enter into a solemn compact (not too well kept) to refuse to load worsted for anybody.

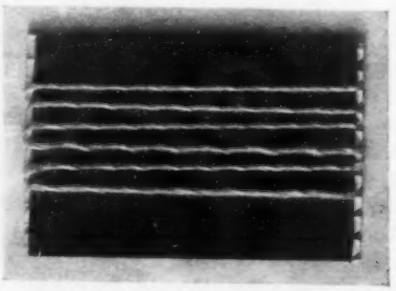
Woven cottons can be adduced as an instance to the contrary, but in them the loading very often contributes towards the lustrous effect that is desired. Hygienically, it is clear that nothing is to be said in favor of putting mineral salts and water into underwear and knitters will probably regret the day that weighting begins. Wessex.

FANCY YARN

Editor Textile World Record:

Please advise me if yarn like the enclosed sample can be easily made on an ordinary ring twister. It is important that the worsted thread be not injured and it should retain its lofty nature.
Greyland (2046).

The sample can be made on any ordinary twister, the effect being due to the use of a very soft 2-ply worsted and a silk yarn. In duplicating this yarn it is important to have the 2-ply worsted and silk of the right size,



quality and twist. The twisting of the silk and worsted together presents no special difficulty and the twist can be made on any ordinary ring twister.

Knitting Department

KNIT GOODS SITUATION

At this writing most of the early buying for the spring of 1913 has been done and manufacturers, as a rule, are well satisfied with the volume of orders on their books.

Buyers have been in the market since July first and their orders have been placed in fairly liberal quantities.

There has been no general changes in prices since the lines were opened and the market may be characterized as a fairly strong one, with every prospect of buyers being obliged to pay higher prices in the very near future.

Balbriggan manufacturers are especially well pleased, as buyers seem to have had their old time enthusiasm and have placed larger orders in all grades running from $1.70 to $3.75.

The sale of men's ribbed shirts and drawers for summer has dwindled to one of small proportions. Nevertheless, a few lines are still made and the orders for them, small individually, make a fairly good business in the aggregate for the few manufacturers who still continue to make the goods. The Morris Mills are showing a line, weighing 4 to 4 1/2 pounds at $1.90; also a line made from combed yarn, weighing 5 to 5 1/2 pounds at $3.00. The Blood Knitting Co. also showed a combed line, weighing 5 pounds at $3.00 and in addition to this, make a very light weight, running about 3 pounds to the dozen at $3.25 with suits of the same fabric at $6.00 and $6.50. The 3 pound line is made from very fine combed Egyptian yarn and buyers have shown favor to this extremely light weight garment. West Brothers of Syracuse are also making a 5 pound line at $3.00 and are continuing to make an 8 pound line on which they have quite a reputation at $3.50.

About the only line of ribbed shirts and drawers between 25 cent and $3.00 lines is one shown by the Maxwell Knitting Co. that weighs 4 3/4 to 5 pounds at $2.75. These people also make a line of medium weights, running from 7 1/2 to 8 pounds at $3.50.

Men's nainsook shirts and drawers are being offered as low as $1.75 per dozen. There is, however, no great eagerness shown by the buyers on this class of shirts and drawers. It is observed that there is considerably more business being done on nainsook drawers than on shirts, but the combination suit with strip of elastic webbing around the waist line is very popular and during the greater part of the month of July, many stores throughout the country were unable to get a supply of B. V. D. combinations. A number of imitations have appeared, among which are some very creditable looking lines as low as $3.75 per dozen. The fact remains that the B. V. D. line which has been so strongly advertised has the call and it is a very difficult matter to get the trade to take the substitutes.

Some manufacturers have noted the fact that many men wear ribbed or balbriggan undershirts with nainsook drawers. As a result several lines of suits with the upper part made of ribbed fabric and the drawer part made with nainsook or muslin have been shown and many buyers have placed orders in a small way on these lines.

Women's straight ribbed vests at 65 cents to $1.00 are being offered at the same figures as last season, and on some lines between $1.00 and $1.20, reductions are noticed of 2 1/2 cents per dozen. From $1.20 to $1.85 there seems to be a discrepancy in that on some lines there are reductions of 2 1/2 to 5 cents per dozen, while on others there are slight advances. The advances are on the more desirable lines of fine gauge goods made on Swiss machines and also on some of the lines made with imitation hand crocheted yokes.

The more important lines of women's shaped ribbed goods are priced the same as last season, and there is an increasing demand for the plain stitch lines, especially in the combination suits. Very attractive lines

of plain stitch suits with torchon lace trimming at the knees are being shown at $2.35 to $2.50. At $3.25 to $3.50 it is possible to get a very handsome line of combed yarn suits with wide lace trimming.

It was noticed, however, that during the season just past lace trimmed pants and suits as well have lost some of their popularity and that on account of the tight fitting skirts, ladies are buying suits made with tight fitting knees.

The so-called three piece suit, patent on which is controlled by Julius Hirsh of Philadelphia, has become very popular with the trade and while Mr. Hirsh continues to get $4.00 for his tuck stitch lisle, he has licensed some other manufacturers to make the same cut garment and they are being shown in cotton at $3.25 and upward.

HOSIERY

The purchasing of hosiery for the spring of 1913 did not begin in good earnest until after the meeting of the buyers' association on July 8th, but since then, orders have come forward in good volume and now a number of the better lines, more especially the fashioned goods, are sold up for the season. Some manufacturers claim to have all the orders their machines can produce up to July 1st, 1913.

Prices that have been obtained are not as good as it was hoped that they might be, but some of the larger factors started in by naming approximately last year's figures. As a consequence it was not long before nearly all manufacturers were pushing for business without getting the advance prices they were entitled to by reason of the increased cost of production.

Prices on silk hosiery are lower in most cases than last year, reductions ranging from 5 to 10 cents per dozen. Owing to the fact that such a large quantity of plated goods have been bought, the indications are that silk hose will be more popular than ever, for there is considerable wear to a plated stocking and the trade will not become so easily dissatisfied as with the pure silk goods at the same prices.

It seems as if the conditions at the present time are all that are needed to cause buyers to place orders for their entire season's requirements. The cold weather in May and June had the effect of retarding the business considerably. The hot weather in July caused a heavy demand that manufacturers were unable to take care of and in consequence, there was a decided shortage during the entire month, not in any one line of goods, but in everything from the cheapest seamless goods at 75 cents per dozen up to the 50 cent retail grades, and stocks in the hands of jobbers have become abnormally low.

CHEMNITZ REPORT

Matters have grown much worse since the last report. Buyers are here in goodly numbers and placing large orders for 1913. As a result the market is extremely active. American buyers are offering such large orders to manufacturers here that many state they could easily sell their productions three times over.

Many new mills are being built and some 39 and 42 gauge machines are being ordered for delivery this summer and fall. The writer thinks he can see trouble ahead, as the manufacturers are already selling the production of these machines and there is not the slightest doubt but that there will be delays in the delivery of the machinery. Even after it is set up it takes many weeks to get a production, and manufacturers generally are not making allowances for these delays.

No fine gauge, light weight goods are to be had for delivery before next May and if the home market should continue to use this class of goods, there will be no more offered to importers for the entire year. It is felt, however, that a reaction may set in at any time and that trade will demand goods of more weight and wearing qualities. Berlin retailers are already urging their trade to buy heavier weights and thereby save complaints.

A large business is being booked on infants' socks in plain tan, white and black in fine combed and mercerized.

Men's half hose business has been quiet.

but has revived of late by the demand from the American buyers, principally on mercerized goods.

Trade in gloves is not very lively. Some makers seem to be satisfied with orders on hand, but most of them are not fully employed.

KNITTED NECKTIES

BY LARAMIE

Improvements are being made continually in all branches of the knitted necktie business and some very fine neckwear is being knit on such machines as English hand frame, producing six neckties at one time. A German power machine produces the same class of work, but making twelve neckties at one time. Another German power machine is producing the accordion ties in a vast variety of stripes in different colors. These

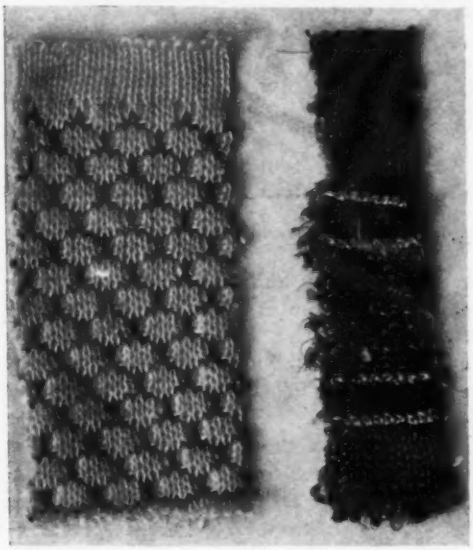


FIG. 1. FIG 2.

machines have six yarn carriers to each tie and make sixteen neckties at one time. They are producing neckwear quite similar to the flat German hand machines.

A number of improvements are being made in the circular machines. The cylinder and dial machine will make accordion ribbed neckties and stripes on either the top or bottom color silk together or separately. The circular crochet machine with cylinder and sinkers can make four colors instead of two or three as heretofore. One striper was put on the market which would make it necessary to run four colors in succession say, black, white, red and green and then begin with black again. A striper now makes any one of four colors desired, for example, black, white, green, white, red, etc., changing them around as desired.

Fig. 1 is made on an English hand frame machine, using a cut presser which is cut three and one. The second color is run in on the tuck stitch. These machines are run by men sitting in front of the machines and using both hands and feet to perform the different operations which go to make the necktie.

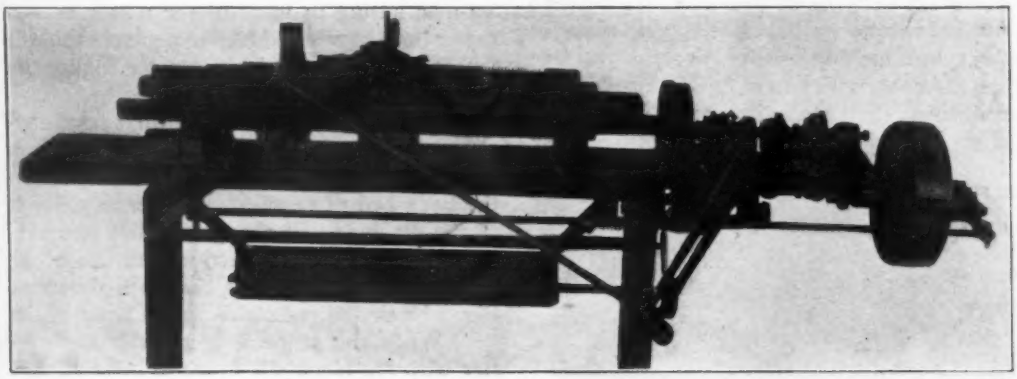
Fig. 2 is made on a German flat hand machine, equipped with four carriers, two on the front bed of needles and the other two on the back bed of needles. A lever at the left of the machine will change so that one carrier will throw out of action and the other one will go in action. In the cloth shown at Fig. 2 black and red make up the body of the tie. When the stripe is being knit the carrier with the black silk is made to stop, and the white silk makes one course. Then the black silk is put in action again. Where the red silk is working this carrier stops and the gold starts knitting. These machines are so equipped as to make the front bed of needles move over one slot or groove at a time for four slots, then go back again one groove at a time. By using this lever and making the front needles move to the next corresponding needle on the back bed of needles and then back again, the machine makes the peculiar stripe shown in Fig. 2. This is known as a racked stripe. The lever which moves the front bed of needles to the next corresponding needle on the back bed of needles is called the racker.

The number of spindles in the United Kingdom at the end of 1911 was 54,522,554; United States, 28,872,000; Germany, 10,480,090; Russia, 8,671,664; France, 7,300,000; India, 6,250,000; Austria, 4,563,745; Italy, 4,582,065; and Japan, 2,131,404.

A POWER ATTTACHMENT FOR HAND KNITTING MACHINES

The illustration shows an attachment which will convert a hand knitting machine into a power machine. For two years past this device has been successfully tried out in three factories in Chicago and has now reached the point where it is ready to be placed on the market.

It can be attached to any flat hand knitting machine, and will enable the machine to knit any kind of goods automatically, except that it will not change the locks. The clutch is electrically controlled by a push button:



AN ATTACHMENT FOR CONVERTING HAND KNITTING MACHINE INTO POWER MACHINE.

the wires are shown in the illustration. It knits any length of fabric desired and stops automatically. An ordinary standard link belt is used.

Several years were spent in developing this attachment before it was put into mill use. Numerous improvements have been made from time to time and the builder now feels that he has a machine which will meet the requirements of knitters and for which there will be a large demand, as there are thousands of hand machines which can be converted into power machines by this method.

W. B. Murray, 934 Wabansia Ave., Chicago, Ill., is the manufacturer of this attachment.

Exports of British cotton piece goods for the first four months of 1912 reached 2 1/5 billion yards.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay of course for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

STARTING A KNITTING MILL

BY F. W. HERINGTON

My first experience, which was in a knitting mill located in a small village in Canada, began when I was eighteen years of age. The owner of the mill was a traveling salesman with an office in a city about one hundred miles distant. He represented two prominent English manufacturers, one of black and blue broadcloths and the other boots and shoes. His route included the principal cities of the United States, and for five years previous to my going to the knitting mill I was with him as office boy, where I gradually learned bookkeeping, correspondence and general office work.

At this time the owner decided to give up the selling of goods for the English houses and devote all his time to the mill and to a gold mine situated about thirty miles from his mill. So his city office was closed and I went to the mill to do the office work and also act as shipping clerk. The mill had only one set of cards, although it was equal to a two set mill, as the one set of cards and the spinning jack were run night and day, the

card room help and the spinners alternating each week, one gang working until twelve o'clock Saturday night and changing for the next week at twelve o'clock Sunday night.

The mill was run by water power, of which there was an abundant supply, sufficient to run a number of mills. The water wheel was an old fashioned wooden turbine, made of three inch plank about 12 inches wide and four feet long, all bolted to a post about 12 inches in diameter, and radiating from the post like the spokes of an ordinary wheel. This was enclosed in a circular box, with an opening into the wheel-box by a chute, similar to the regular cold air-box of a hot-air furnace. It was built of three-inch planking. On the upright post on the bottom was an iron pivot and socket, upon which the wheel revolved. There was a bevel gear on top of the post, connected with another bevel gear on the main shaft. The heating of the mill was done with square box stoves, each about five feet long and two feet high, in which hard cord wood costing $1.50 per cord was used, the stove being long enough to take in the full length of the stick. It would take in ten or twelve sticks and gave out considerable heat. The mill had two stories and a basement, with a two-story addition. The basement contained the boiler for steam used for scouring purposes and in which cord wood was burned, coal not being used in the village. In the basement was also the fulling or scouring machine, and the iron kettles for making soap or for dyeing. On the first floor were the one set of cards and the spinning jack. The latter was operated by the spinner and was not automatic like the present spinning mules. The spinner had to draw out the carriage himself and, when the proper amount of twist was put in the yarn, take hold of the crank, back off the spindles, and wind up the yarn on the bobbins, taking the carriage in by this operation, ready to repeat the draw. These operators or jack spinners earned from $1.50 to $1.75 per day. During my spare time I learned to run a jack and often worked all night when a spinner was absent.

On the second floor were the knitting machines, winder, sewing machines and finishing room. In the addition, on the first floor, were the shoddy picker, wool store room and the roll card. As a number of my readers may not know what a roll card is I will try to explain it. A roll card was a double card, similar to a second breaker and finisher card combined, and was used only for carding the farmers' wool into "rolls." Instead of the usual ring doffers on the ordinary finisher card, sheets of clothing were placed lengthways of the doffer with space between them, so that the roving was taken off in a long length, about forty inches, and made into a roll or curl, about the thickness of one's finger. The farmers would take these rolls home to be spun into homespun yarn on the old fashioned spinning wheel. The yarn was taken to another mill and woven into cloth. This class of work only lasted two or three months in the year, the charge for carding being four cents per pound. The second floor of the addition was used as a pressing, parceling and shipping room, being connected by a bridge with the finishing room.

Strictly all wool goods were made. No shoddy was bought, but the clippings and waste were all put through the shoddy picker, and mixed with a new lot of wool. The style of goods was two by two mock rib, a small quantity of dyed black wool being used, so that the goods were a light grey in shade, and weighed from twelve to twelve and a half pounds to the dozen. The price was twelve dollars per dozen.

The production of the mill averaged from ten to twelve dozens per day. The average wages of the female help was from $1.50 to $2.50 per week, the forelady receiving as high as $3 per week, wages being paid monthly. This seems today to be a very low wage, but if we compare the cost of living then and now, the wages then are found to be higher than at present. Board and room for men was only $2.50 per week; and for girls, only $1.25 per week. Even at that rate it was profitable, because of the low prices for food. Meat was from four to six cents a pound at retail; butter, twelve to fourteen cents a pound; eggs, nine to twelve cents a dozen and fresh at that, no cold stor-

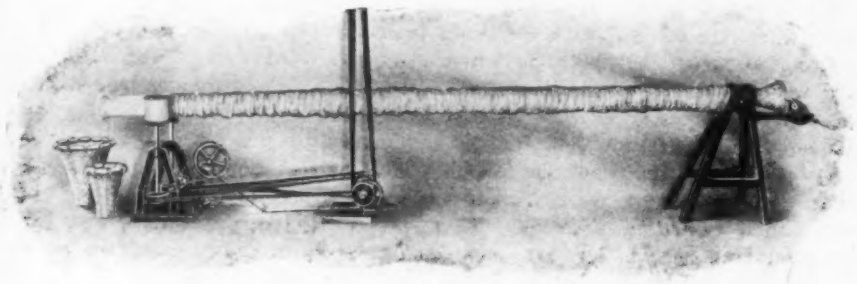
age about them; potatoes, twenty-five to thirty cents a bushel, and other things as cheap. A person today receiving four times the wages is no better off, as the money has to be paid out for the increased cost of everything that enters into the cost of living.

The production of the mill seems small when compared with the production of a mill today, but the annual profits were from four to five thousand dollars, which is relatively a better showing than is made by the modern knitting mill producing a hundred dozen a day.

(To be continued.)

AN IMPROVED CLOTH TURNER

The No. 7 cloth turner designed and patented by the Grand Rapids Textile Machinery Co., Grand Rapids, Mich., is a machine which turns tubular fabrics of all kinds before loading it, performing the operation rapidly and without strain on the cloth.



AN IMPROVED CLOTH TURNER.

The device consists of a seamless steel tube 13 feet in length, set horizontally in a cast iron standard 33 inches from the floor. The tube is supplied with three detachable ends, 7, 11 and 16 inches respectively in diameter with turning rollers attached, and two small rolls set in the shell of the tube and sliding in such a way that they may be pressed together.

The cloth is drawn inside the tube at the supported end, between the sliding rolls set in the shell of the tube, around the end over the turning rollers, and back on the outside of the tube. Motive power to turn the small rolls is supplied by a loading machine with solid driving rolls. The cloth is gripped between the small rolls on the inside of the tube, drawn toward the unsupported end on a direct line, and fed toward the end so that it will pass loosely over the turning rollers. It is then brought back until it is gripped between the sliding rolls and the driving rolls of the loading machine which feed it back on the outside of the tube. The machine is run until the entire piece has been drawn through the tube, turned inside out and deposited around the outside of the tube by the driving rolls.

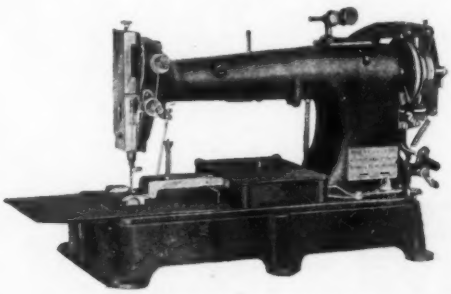
The fabric is now turned as desired and after this operation is performed the feeding rolls are swung apart and the fabric may be drawn off the end of the tube and folded or otherwise disposed of. One important feature of the device is that the fabric is fed loosely over the turning rollers on the end of the tube so that it is not strained or distorted in the operation and there is also no strain on the fabric as it is drawn off after it has been turned.

There is one more of the machines comprising the Shields method of handling cloth, the entire system being based on the principle that to produce uniform garments one must have uniform cloth. All these machines are designed to eliminate strain and distortion of the cloth as it passes from one operation to another, the result being cloth that is uniform in width, at its natural tension, soft, pliable, and elastic. Garments made from such cloth must necessarily be of uniform size.

AN IMPROVED LABEL STITCHING MACHINE

The Rose Label Machine Co. of Grand Rapids, Mich., are now putting on the market a new and improved model of their label stitching machines. A number of important changes have been made since the machine was exhibited at the Knitting Machinery Exhibition in Philadelphia last May. These machines are now constructed so that the entire working parts are incased in a dust and lint proof case.

While the principle of feeding the cloth and label by a forward, back and sidewise



THE ROSE LABEL STITCHING MACHINE.

motion under the needle is the same, the principle of the feeding mechanism itself is entirely different.

Originally, this feed mechanism was accomplished by curved internal gears and delicate rollers which required fine adjustments and often gave trouble by binding because of these delicate adjustments. With the perfected model this result is accomplished with the use of straight rack gears; no adjustments of any kind are required, making it impossible to have it bind at any point.

This new type machine sews an absolutely even stitch all around the label and also makes square corners and stops on the last stitch of the circuit automatically. This machine can be used for sewing on tape to reinforce the buttons and button-holes, labels, paper tags, reinforced stitching or in fact any place where a square, or oblong stitching is required.

A CIRCULAR KNITTING MACHINE

The object of this new construction, recently patented, is to provide means by which the reinforcing is supported so that it is out of contact with the main thread and is automatically brought into contact so as to be carried into action at the required point. An attachment is also provided for throwing out of action and severing the

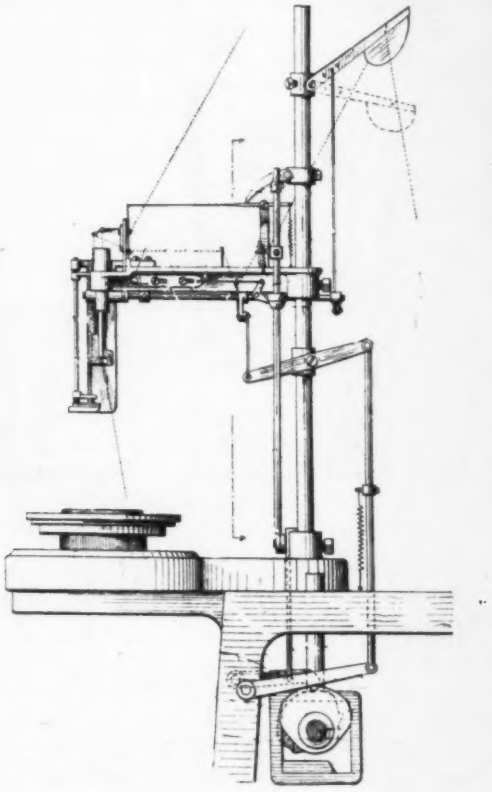


FIG. 1.

reinforcing thread. Two thread guides are used, through one of which passes the main thread, and through the other the reinforcing thread. The reinforcing thread guide is pivoted so that it can move the thread into and out of contact with the main thread. Cutters are provided which are in the line of movement of the reinforcing thread, when its guide or tube is moved away from the main thread guide or tube. These cutters close

and sever the thread after the thread is moved between them. The mechanism to cause the movement of the reinforcing thread guide or tube into action operates slack devices to draw forward sufficient yarn to allow the thread to be moved into action by the main thread. In this reverse movement also the cutters are opened and locked from closing.

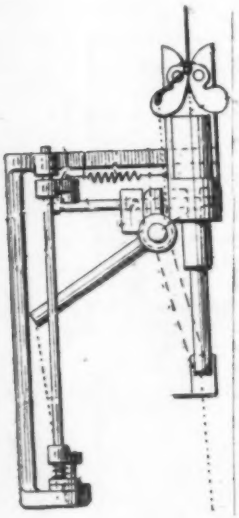


FIG. 2.

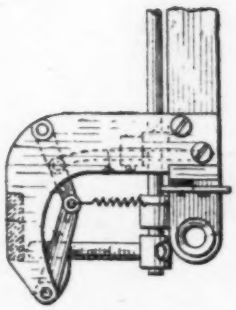


FIG. 3.

FIG. 4.

A KNITTED FABRIC

The ribbed knit fabric, recently patented, and shown in the accompanying illustration, has for its object to provide a construction that is adapted for either porous or close knit goods. The fabric has the desirable elasticity of regular ribbed goods, and being made with a double web can have different colors on face and back as desired. It comprises two interlocked webs having front and back loops interwoven with other yarns to form ribs. Both dial and cylinder needles are used, the ribs being sufficiently heavy to give body to the goods, and the yarn of the ribs

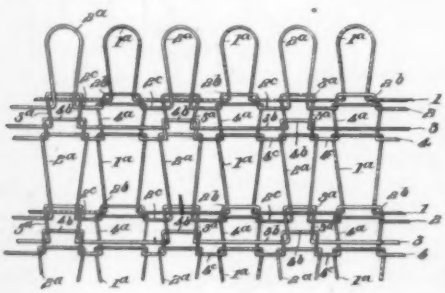


FIG. 1.

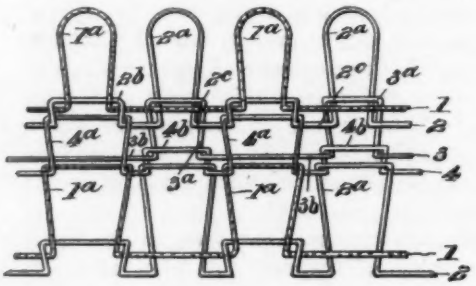


FIG. 2.

A KNITTED FABRIC

Fig. 1 is a side elevation of a portion of a knitting machine embodying the invention; Fig. 2 is a front view; Fig. 3 is a top plan view of same; Fig. 4 is a section on line, 4—4, Fig. 2.

being connected by loops which give elastic qualities. The joining of the threads is not on the face of the fabric, being interwoven with front and back loops formed alternately. Four courses are employed, one of which forms front loops, another back loops, and the remaining two both front and back loops, the two latter forming ribs on both faces, the wales on one face being equal to those on the other, with openings between to give a porous effect.

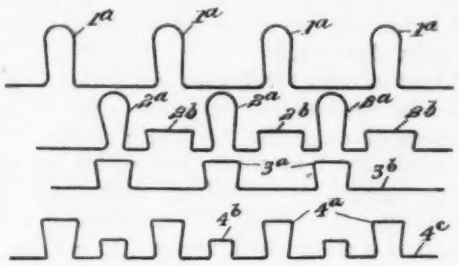


FIG. 3.

Fig. 1 is a front face view of the fabric; Fig. 2 is a rear face view; Fig. 3 is a plan showing the loops of the various threads, detached. The threads of the fabric are indicated at 1, 2, 3 and 4; 1 being the courses forming the back web; 3, the courses forming the front web; and 2 and 4, the courses which interlock with the others, and the loops of which alternate with the loops of the courses, 1 and 2. Thus each back yarn, 1, forms a series of single loops, 1^a. These loops are comparatively long and connect the ribs on the back. The yarn indicated at 2 is formed with alternate long and short loops, 2^a and 2^b, respectively, the former being in the front web, and the latter in the back web, the short loops, 2^b, drawing over the necks of the loops, 1^a, at the back and the long loops, 2^a, being disposed at the front of the fabric, the connecting parts, 2^c, extending through the fabric, the long loops, 2^a and 1^a, being located in alternation. The front yarn, 3, has a series of short single loops, 3^a, which draw under the necks of the loops, 2^a, and float across the spaces intervening between said loops, at the front of the fabric. It will thus be seen that the webs composed of the courses, 1 and 3, are interwoven or interlocked by the long and short loops of the course, 2. The course, 4, which is also an interlocking course, has long loops, 4^a, at the back, which draw over the short loops, 2^b, at the back of the fabric and also has short loops, 4^b, which draw under the loops, 3^a, at the front, extending intermediately through the fabric in the form of loops, 4^c, which interlock through the loops, 1^a and 2^a, of the next course. The threads, 1 and 2, last mentioned, are in turn interwoven with each other and with the successive yarns, 3 and 4, in a similar manner.

The courses, 2 and 4, where they extend across the fabric in interwoven relation with the courses, 1 and 3, form a heavier body at regular intervals, producing the ribs in the fabric, partly in connection with the adjacent float portions, 1^b and 3^b, of the courses forming the front and back webs. The ribs are connected by the long loops, 1^a and 2^a, which, when loosely knitted, give a desirable porosity to the fabric. By drawing these loops tight a heavy close knit fabric will be produced.

A fabric with different colors on opposite sides may be produced by making the yarns, 1 and 3, of different colors. The necks of the loops all tend to draw in, or away from the surface at both sides, so that the joints where the yarns cross are not exposed to wear. In consequence of this the fabric has great durability and a finer finish.

The wales containing the loops, 1^a, are located at the side of the fabric opposite to the wales containing the loops, 2^a. For convenience, the former are in the back and the latter the front of the fabric, but this is optional. The loops, 1^a and 2^a, may be drawn as tight as desired, thereby varying the size of the opening between the ribs and consequently the porous nature of the fabric. Similarly the tension of the rib threads may be varied to make the ribs more or less dense.

Of the total shipments of wool to the United States from Bradford in 1911, amounting to 10,454,757 pounds, valued at $2,443,012, British wool represented 3,852,305 pounds, valued at $945,867, and colonial and foreign wool 6,602,452 pounds, valued at $1,497,146.

Dyeing, Bleaching, Finishing, Etc.

OFF SHADES IN WOOLEN GOODS

BY BERWICK

Defective shading is one of the most serious annoyances the woolen manufacturer has to contend with. It is the one condition that both the dyer and finisher try to prevent or overcome. Off-shades will occur at times in the best regulated mill and occasionally when accidents have not occurred and where everyone is at a loss to account for the trouble. It has happened in almost every mill that matters progress smoothly for long periods at a time, when suddenly set after set of pieces come from the finishing room distinctly differing from the sample they were intended to match. This is particularly annoying when the material is intended for the cutting trade, where trousers may be made from one set of pieces, vests from a second piece, coats from a third, etc.

Such off-shades entail considerable expense to the manufacturer of clothing, who feels, perhaps justly, that the cloth maker should reimburse him for the expense necessary for matching up suits made from cloth of different sets. In the first place, it is extremely difficult for a dyer to match up exactly, several sets against a given sample and invariably produce the closeness of match desired by the clothing manufacturer. The difficulty arises not only from the variation of quantities of dyestuffs used, but also from the quality of the light that varies hourly through the day.

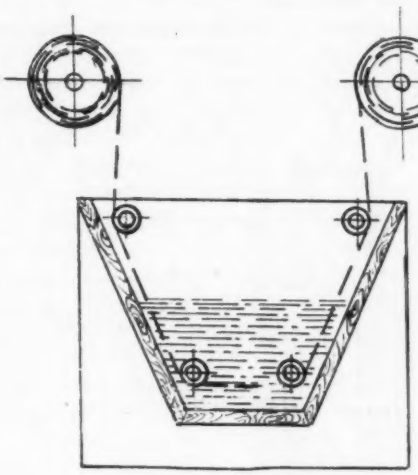
Off-shades are occasionally due to changes in the quality of the wool used in making the yarn. It sometimes happens that the super may see where he can save on the order by substituting another wool mixture, which he promptly proceeds to do without previously warning either the dyer or finisher to be on the lookout for pieces of different composition or quality. It is a mistake to withhold such information from the two departments that must bear the brunt of off-shades. Off-shades are also traceable to differences in the quality of wool oils used. It has happened that some overzealous mill buyer, doubtless knowing more about driving an apparent bargain than securing increased quality, sends oils to the picker house that answer the purpose of wool lubrication, but which may be difficult to scour out, or which may leave the wool slightly discolored.

Another very serious drawback that is frequently encountered in some mills, is the rushing through the dye house of pieces all properly dyed to shade, but which do not pass through the finishing department as promptly. The result is that the pieces lie about in a damp condition and do not finish up as satisfactorily. They will not stand fulling and gigging to the same extent as the pieces that are finished without delay, and they are sure to come out off-shade.

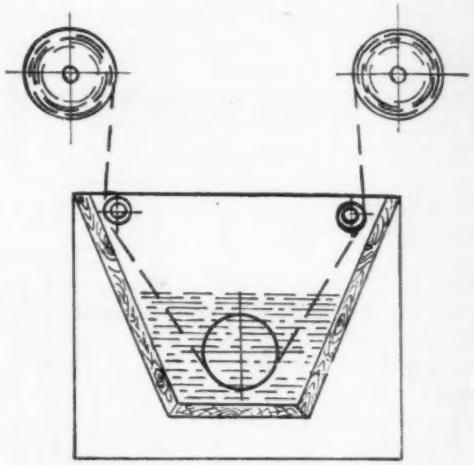
In the ordinary course of dye-house work it should be the aim of the dyer to adjust the working formula so that bringing up to shade can be done in the shortest possible time. For this reason when he possesses the proper skill it will be best to use straight dyestuffs and not mixtures. If he must use mixtures, he should know their composition, and have a small quantity of each, should special shading be necessary. Properly scoured goods should always be insisted upon. If the scouring is not done by the dyer or under his supervision the super should see to it that the scourer knows his trade and is sufficiently interested in his work not to permit an unclean piece of goods to leave his department. Nothing is more discouraging to a dyer than to have delivered to him unclean goods that are supposed to have been thoroughly cleansed. Not only will off-shades result from such carelessness, but the pieces will come out shaded. Neither the dyer nor finisher is in a position to remedy such defects.

The fulling process has a marked influence on dyed pieces. Even where the greatest

care is exercised, slight differences, hardly noticeable in the fulling mill, make distinct differences in the shade of the fulled goods. It is almost impossible for the finisher to exercise personal supervision over every detail, but many are not ready to admit that an excess of soap might have been used or the temperature in the mill might have been excessive, both conditions contributing to alter the shade as dyed and previously matched in the dye house. It is almost impossible to match a freshly dyed and dried swatch of woolen cloth against a clipping of finished goods. Variations of shade are to be expected within certain limits. This holds particularly true in the matching up of browns. During the last few years the ready-made garment trade has called for immense quantities of goods, many patterns containing effect stripes of either silk or cotton. The dyer and finisher have both been engaged in a constant struggle to make each succeeding set of pieces match the first set. When this object has not been attained it has often been impossible for anyone to point out the source of the difficulty. There is no doubt, however, that off-shades and shaded pieces are often the direct result of attempts to rush pieces through the mill, making it impossible for each department to give the goods the right treatment. Ordinarily, men's and women's wear are dyed with colors that are presumed to stand a certain amount of exposure and wear, to resist which, it is necessary that the goods should be properly dyed. Proper dyeing requires sufficient time in the dye bath to fix the color and any shortening of the time means off-shades.



THE OLD WAY WITH 4 INCH WOOD ROLLS.



THE NEW WAY WITH ONE 8 1-4 INCH EARTHENWARE ROLL.

IMPROVEMENT IN DYEING JIGS

Editor Textile World Record:

Much trouble is experienced in the dye house by the sticking of the small guide rolls at the bottom of the jigs. This is generally caused by loose ends and lint collected around the gudgeons. When a roll sticks, the trouble begins, especially on light material. The undue strain will be seen when the goods reach the finishing room. Scrimps will always occur at each passage through the jig. The roll will hold fast for some time and then break away, necessitating the emptying of the jig box while a new roll is put in. This means waste of dye liquor and time.

As a remedy, I suggest the use of a single roll, about 8 inches in diameter, with a shaft of suitable size running its entire length and boxed in easy running bearings, as shown on the accompanying sketch. While the

cloth travel through the dye will be somewhat shortened, the larger contact on the roll will more than offset the shortened passage as the dye liquor will be better squeezed through the fabric. The suggested single roll will necessitate no change in the usual jig-box. If the roll is made of earthenware, it will be easily cleaned and will last as long as the mill stands.

John D. Street.

A WARP DYEING MACHINE

The machine, shown in the illustration, for dyeing cotton yarn in warps or chains, has recently been patented in this country and is described by the inventor as follows: In dyeing cotton warps or chains, the warp threads are collected in a strand wound loosely around the threads. This strand is dyed by passing it in a zigzag path one or more times through the dye solution. The warp passes over guide rolls beneath the surface of the solution and thence over guide rolls usually above the level of the solution, thus alternately dipping into the solution and then being exposed to the air. The exposure to the air between the periods of submersion caused a certain amount of evaporation and oxidation in some cases and is liable to cause a variation in the color from that produced in the trial dyeing. In making the trial dyeing the yarn is entirely submerged and kept submerged as long as is necessary. The effect on the complete warp is thus distinctly different in many cases from the effect produced on the sample when the dyeing solution was the same.

The object of the new machine is to keep the warp completely submerged in the solution in its passage through the machine. A minimum quantity of solution is used, and a maximum time of submersion is obtained so that it will be practicable to obtain shades of great depth with only a single passage through the machine. Any reasonable

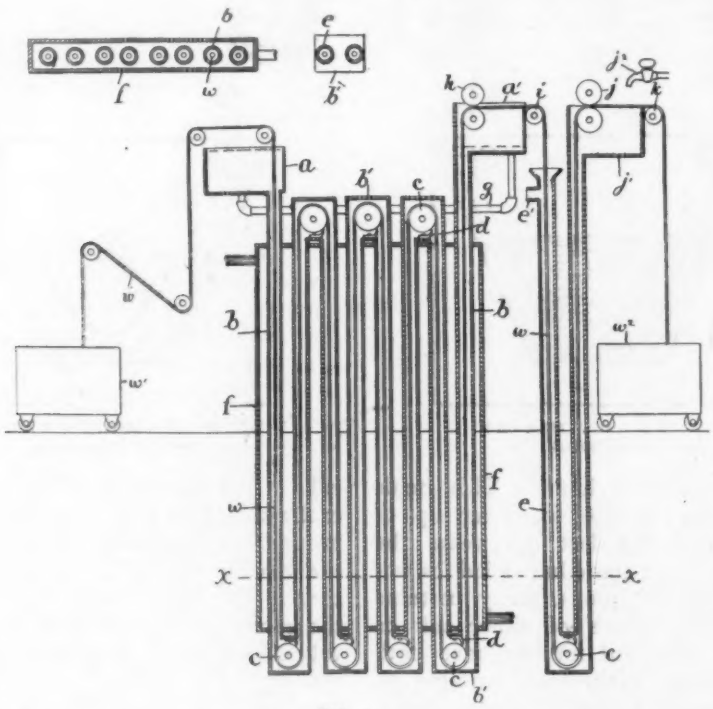


FIG. 1.

quantity of solution above the minimum necessary to fill the pipes may be used. The hydrostatic pressure of a depth of water much greater than usual is utilized to cause complete penetration of the yarn by the dye solution. There is an effective circulation of the dye solution.

The vat is constructed in the form of a continuous coil through which the warp is drawn, guide rolls being located at the bends in the coil. A supply tank connects with the inlet end of the coil where the warp enters and an overflow or drip tank is connected with the other end and provided with squeeze rolls for removing the surplus solution.

Fig. 1 is a general vertical section through the machine taken from end to end, and Fig. 2 is a section on the line, x x, of Fig. 1. The warp, w, is drawn through a vat constructed in the form of a continuous coil and provided with guide rolls in the bends of the coil. A continuous vertically disposed coil is provided with hollow heads, b′, on the top and bottom, these heads being united by straight sections of pipe, b, the heads and the pipes forming a continuous passageway for the passage of the warp. Journaled in each head is a guide roll, c, over which the warp strand passes and the edges of the rolls are generally in line with the centers of the pipes. The coil is kept full of dye solution and the warp is entirely submerged while it is passing through. The coil is so arranged that two end pipes are open at their upper ends and connected with the upper end of the inlet pipe is the supply tank, a, through which the solution is introduced into the coil. The warp, w, is drawn from the receiving car, w′, and passes over suitable guide rolls to the tank, a, and thence into the coil as described.

To the upper end of the outlet pipe is connected an overflow tank, a′, which should be placed at a higher level than the tank, a, since it is constantly receiving a supply of liquid carried with the warp. The tank, a′, is provided with a pair of squeeze rolls, h, for squeezing out the surplus dye. A return pipe, g, connects the overflow tank with the supply tank so that the surplus dye which is squeezed out will be returned to the supply tank. Means are provided for washing the warp strand at once, if desired after it passes through the dyeing vat. A single section of coil, e, of the same general construction as the vat is used. One of the pipe sections of the coil, e, having an overflow, e′, receives the warp after the latter has passed over the guide roll, i, and the other pipe connects with the drip tank, j′, which is provided with the squeeze rolls, j, and water supply cock, j^2.

A steam jacket, f, is provided for keeping the dye hot as it passes through the coil. Hot water may be used in place of steam when a lower temperature is required. The pipes, b, being but little larger than the warp strand, a relatively small amount of the solution is required to fill the vat. The warp is kept submerged during the operation. The strength of the dyeing solution is maintained by adding dyestuff to the supply tank. The water flows in the direction opposite to that in which the warp moves, the latter emerging from the cleanest water.

VAT DYES

In the ordinary acceptance of the term, a vat dye means a coloring matter insoluble in water and alkali, but convertible into a leuco compound by an alkaline reducing agent. Hence the fastness depends to a large extent on the affinity of the fiber for the leuco compound. Now this condition is satisfied by the following groups of dyes:

1. Anthrakinone dyes.
2. Indigo and Thio Indigo dyes.
3. The carbazol dyes, such as Hydron Blue.

The sulphur dyes are not classed with the vat dyes, but resemble them. They are insoluble in water or alkali, and have to be brought into the leuco state for use, the leuco compounds being oxidized by subsequent exposure to the air.

These groups are distinguished by their behavior with textile fibers. The anthrakinone dyes have little affinity for other than vegetable fibers, while indigo and the Thio Indigos serve for both animal and vegetable fibers. The carbazol and the sulphur dyes

are practically restricted to vegetable fibers. The hydrosulphite vat is the one most used, as it gives the purest shades. It must first be freed from the oxygen dissolved in the water used in the bath. This is done by putting the water first into the vat, and then dissolving in it .15 part by weight of hydrosulphite powder per 1,000 parts and .06 to .07 part of caustic soda lye 40° B., stirring well, and leaving to stand for about an hour and a half. The stock solution is then put in through a hair sieve, and after a short time the dyeing is started at 86° to 104° F. To secure better penetration, especially necessary with light shades, half a gramme of Turkey red oil or Monopol soap can be added per liter of bath. To secure better exhaustion of the baths, especially necessary with dark shades, from 10 to 30 parts of common salt or Glauber's salt can be added per 1000 parts of bath.

When yarn is dyed in the form of cops or spools, it must be freed from air to begin with by soaking with soda lye and hydrosulphite. The soda is necessary to soften the water. The vat bath must be perfectly clear to prevent unlevel dyeing. The development is usually effected by means of hot baths of soap and soda, but sometimes with bleaching powder. A soaping before chloring often clears the shades.

With regard to piece dyeing, it is to be remarked that although the slowly oxidizing vat dyes may be dyed on the jigger, it should be of the constant immersion type. Vat dyeings on cotton are fast to alkali, washing, water, light, topping, weather, and chlorine, and therefore find employment in a very great variety of goods where fastness is a desideratum. Among the fastest of the vat dyes on cotton are the carbazol group. Hydron Blue can compete with both natural and artificial indigo as far as vegetable fibers are concerned, and it is less sensitive than most sulphur dyes. Hence it is better adapted than they are for machine dyeing, where the progress of the dyeing cannot be so closely watched. The baths of Hydron Blue exhaust well, and this fact must be taken into consideration in combining it with indigo, which exhausts very imperfectly.

We now come to the use of the vat dyes in calico printing. This requires experience, but the difficulties are easily overcome. The printing color is, of course, alkaline, and contains a reducer, such as glucose, Hydrosulphite N F, or Rongalite C. The alkalinity is produced with caustic soda for such vat dyes as form not easily soluble leuco bodies, and with soda for such vat dyes as form easily soluble leuco compounds. The leuco compounds of the Ciba, Helindone, Indanthrene, and Thio Indigo dyes are more readily soluble than those of the Algol, Cibanon, and Hydron dyes. The most important printing process is that with hydrosulphite. After printing and drying, the goods are steamed with dry steam at 220° to 226° F., for from three to five minutes in the Mather & Platt, and the resulting leuco bodies are oxidized by atmospheric oxygen or by other means, such as chroming. Mere rinsing, which involves oxidation by the air, suffices when carbonate of soda or potash has been used in the printing color, but when the alkali used was caustic soda, a neutralizing bath of weak sulphuric or hydrochloric acid is necessary. In developing, chloring gives purer shades than chroming.

Linen dyeing is under special obligation to vat dyes, as they give the fiber very fast colors at temperatures low enough to prevent all tendering. Light shades are dyed in the hydrosulphite vat at from 104° to 122° F., dark shades at from 122° to 158° F. in the hydrosulphite vat.

The superiority of the vat dyes over the sulphur dyes in fastness to light and weather makes them specially useful in the dyeing of yarns for tent cloths. The superiority of the vat dyes has also been realized in wool dyeing. The dyeings are as fast as on cotton, and the wool is not in the least damaged by the dyeing process. Moreover, loose wool dyed with vat dyes offers far fewer difficulties in spinning than similar wool dyed with adjective coloring matters. Caustic soda must not be used in wool dyeing with the vat dyes, and ammonia takes its place. The dyeing temperature is from 122° to 158° F. As with cotton, the baths must be clear after the addition of the reducing agent (usually hydrosulphite). A turbid bath means leuco bodies which have been precipitated, and are

wasted so far as dyeing is concerned. Turbidity means deficiency of alkali, and can be remedied if noticed before the goods are entered by putting in a little more ammonia.

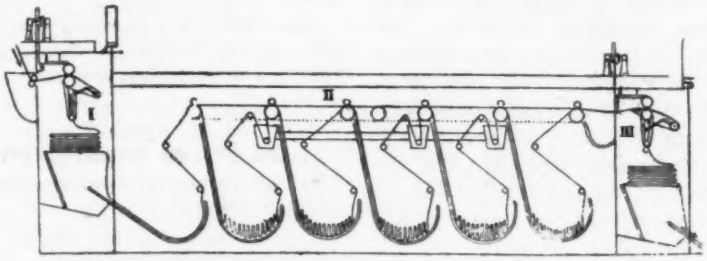
In the case of silk, the vat dyes are beginning to replace alizarines, being their equals in fastness and their superiors in simplicity of application, and also in avoiding all diminution of the scroop or luster.

As regards artificial silk, the vat dyes give excellent results with cuprate and viscose silks, but are not so satisfactory with nitrocellulose silks.—The Dyer and Calico Printer.

DYEING AND BLEACHING PIECE GOODS

From Oesterreichs Wollen & Leinen Industrie

The machine shown in the accompanying illustration is designed for dyeing, steaming or bleaching piece goods in the open width by a continuous process. It is a Russian invention and recently patented in that country. The apparatus consists of three chambers, a loading chamber, 1, a steaming chamber, 2, and an unloading chamber, 3. The steaming chamber, 2, is under pressure when the machine is in operation. The loading chamber, 1, is connected with chamber, 2, and shut off from the outside air when the cloth is being run into the steam box. After that is accomplished and while the cloth is circulating in the steam box, the chamber, 1, is separated from 2, and connected with the outside air so that a new lot of goods can be placed in it. The unloading chamber, 3, is shut off from the outer air and connected with the steam box, 2, while the machine is working. When the process of bleaching and dyeing is completed both the chambers, 2 and 3, are opened and the goods removed from the machine. During the operation the cloth is circulated back and forth in the steam box, 2, until the process is completed.



CONTINUOUS DYEING AND BLEACHING MACHINE.

FIREPROOFING COTTON GOODS

Editor Textile World Record:

I would be glad of any information about the process of making cotton goods non-inflammable.

Saxon (2025).

The reader's attention might be directed to "Fireproofing of Woven Fabrics" in the Textile World Record of December, 1911, and to "Fire Tests for Textiles" in the December, 1910, issue. In the article first named Dr. L. J. Matos enumerated a list of substances commonly used, viz.: borax, phosphate of ammonia, silicate of soda, tungsten salts, titanium salts and ammonium sulphate. To these might be added common salt and common alum, which are not conspicuously efficacious for the purpose, and zinc oxide, which has virtues as a fireproofing agent, but is an unsuitable chemical to wear near the skin. The latter objection applies to others in the list and in fabrics intended for wear upon the person it may be better to take the risk of fire than to court pneumonia from wearing cloth that is kept in a continually moist state by its dressing of hygroscopic chemicals.

The ingredients used in Dr. Perkin's process of rendering flannelette non-inflammable are stannate of soda, 42° Tw., and ammonium sulphate, 140° Tw. After steeping in the tin salt the fabric is squeezed, dried and passed into the ammonia solution. The cloth is then squeezed, dried, washed in running water and squeezed again. This is

the patented "Non-flam" process, U. S. patent 844,042, Feb. 12, 1907. The advantage of using stannate of soda in preference to cheaper and more stable salts are not apparent to Dr. Matos and have been undiscoverable to practical men who have made comparative tests. Tungstate of soda is usually employed. It is to be observed that large claims are made by the operators of the "Non-flam" process as to the permanence of their treatment. The goods are said to stand a great number of washings in soap without seriously impairing the resistance to flame. If the claim is good it is to be supposed that some undisclosed means are taken of combining the chemical and the fiber. The salts used are nearly all highly soluble and in general their effect disappears after the first visit to the laundry.

The Calico Printers' Association patented, British patent 25,167 of 1904, a process of precipitating an insoluble magnesia salt upon the fabric. According to this method the goods are impregnated first with magnesium sulphate and then treated with silicate or phosphate of soda. Apparently the efficacy of any treatment depends upon the manner in which it is conducted, as well as upon the strength of solution used and a thorough impregnation is desirable.

Dr. Matos gives recipes for proofing articles such as theater decorations which can be painted. It may be added that a Russian has described a method of fireproofing wood in which alum, zinc chloride, powdered talc, milk and linseed varnish are incorporated with paint. As a simple protective water-color wash he names the use of a compound of zinc oxide, zinc chloride, alum and talc. The idea of using ammonium sulphate and ammonium phosphate along with coloring solution for the purpose of simultaneously staining and proofing wood was the subject of U. S. patent, 961,123, of June 14, 1910.

James Strand.

The strange-looking name of another textile fabric—"seersucker"—originated in Persia. Seersucker is the East Indian name of United States imitations in cotton of a cool Indian fabric worn by American clerks and railway servants.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 113

BLUE ON WORSTED PIECE GOODS

Blue on 100 lbs. worsted piece goods. Prepare dye bath with

12⅔ ozs. Amazo Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
2 ozs. Amazo Brilliant Red 2 B.
160 grs. Amazo Fast Yellow L. R.
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter at 140° F., bring to a boil and boil one hour.

These colors are especially adapted for worsted piece dyeing because of their good fastness to light and level dyeing properties.

Recipe No. 114

DARK RED ON WORSTED PIECE GOODS

Red on 100 lbs. worsted piece goods. Prepare dye bath with

3 lbs., 12 ozs. Amazo Orange Crystals.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
7⅓ ozs. Amazo Brilliant Red 2 B.
12⅔ ozs. Amazo Violet 5 B.
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter at 140° F., bring to a boil and boil one hour.

These colors are noted for their level dyeing properties and good fastness to light.

Recipe No. 115

BORDEAUX RED ON WORSTED YARN

Chrome Fast Bordeaux A on 100 lbs. worsted yarn. Prepare the dye barh with

2 lbs. Chrome Fast Bordeaux A.
(Berlin Aniline Works, 213 Water St., New York, N. Y.
20 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter at 120° F., raise very slowly to a boil, and dye at a boil for 1/2 hour. Then add

1½ lbs. Sulphuric Acid.

and continue the boiling for 1/2 hour. Then add

1½ lbs. Potassium Bichromate

and continue the boiling for 3/4 of an hour longer.

Chrome Fast Bordeaux A possesses very good fastness to light, weather, and also possesses good fastness in most other respects.

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Recipe No. 116

BROWN ON WOOLEN YARN

The yarn is first mordanted with

3 lbs. Bi Chrome.
2½ lbs. Cream Tartar.

The dye bath is then prepared with

3 lbs. Aliz. Brown M S D.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Boil for 1 1/2 hours.

This color belongs to the Mordant or Chrome color class, and its principal feature is its fastness to light and milling.

—÷—

Recipe No. 117

YELLOW ON COTTON YARN

Azidine Yellow M on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Azidine Yellow M.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
20 lbs. Common Salt.

Dye at a boil for one hour.

Azidine Yellow M possesses good fastness to light, washing, chlorine, acids and alkalies.

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Recipe No. 118

KHAKI ON COTTON YARN

Thiophor Khaki D on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Thiophor Khaki D.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
10 lbs. Sodium Sulphide Crystals.
5 lbs. Soda Ash.
30 lbs. Common Salt.

Boil up the bath, enter yarn, and dye at a temperature just below the boil for one hour.

Thiophor Khaki D possesses excellent fastness to light and also cross dyeing.

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Recipe No. 119

BLACK ON WORSTED YARN

Oxy Chrome Black F V OOO on 100 lbs. worsted yarn. Prepare the dye bath with

3½ lbs. Oxy Chrome Black F V OOO.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 120° F., and dye at a boil for 3/4 of an hour, then add

1 lb. Sulphuric Acid,

and continue the boiling until the bath is exhausted. Then add

2 lbs. Potassium Bichromate

and continue the boiling for 3/4 of an hour longer.

Oxy Chrome Black F V OOO may be dyed as a straight acid color, a mono chrome color, or as a chrome mordant color. Its fastness to light, washing and practically all of the common color destroying agencies is very good.

It will be found useful in connection with the dyeing of silk and wool union material.

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Recipe No. 120

GREEN ON COTTON YARN

Katigen Brilliant Green G X on 100 lbs. cotton yarn. Prepare the dye bath with

15 lbs. Katigen Brilliant Green G X.
(Farbenfabriken Co., 117 Hudson St., New York, N. Y.)
15 lbs. Sodium Sulphide Crystals.
6 lbs. Soda Ash.
60 lbs. Glauber's Salt.

Bring bath to a boil, enter material and dye at a temperature just below the boil for one hour.

Katigen Brilliant Green G X possesses very good fastness to light.

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Recipe No. 121

VIOLET ON WORSTED YARN

Chrome Fast Violet R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Chrome Fast Voilet R.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
20 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter at 120° F., raise slowly to a boil, and dye at a boil for 1/2 hour. Then add

1½ lbs. Sulphuric Acid,

and continue the boiling for 1/2 hour. Then add

1½ lbs. Potassium Bichromate,

and continue the boiling for 3/4 of an hour.

Chrome Fast Violet R possesses very good fastness to light, weather and also possesses fastness in most other respects.

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Recipe No. 122

SCARLET ON SILK YARN

Prepare the dye bath with

4 lbs. Silk Scarlet M 5 B.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)

This has been dyed with Alium Mordant and its principal feature is its brightness of shade and simplicity of dyeing. As to its fastness, it is equal to any scarlet of its kind on the market.

Recipe No. 123

GREEN ON WORSTED YARN

Omega Alizarine Green F on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Omega Alizarine Green F.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 100° F., bring slowly to a boil and dye at a boil for one hour. Then add

1 lb. Sulphuric Acid

and boil 1/2 hour longer to exhaust the bath. Finally add

1½ lbs. Potassium Bichromate

and aftertreat at a boil for 3/4 of an hour.

Omega Alizarine Green F possesses good fastness to the common color destroying agencies. In dyeing piece goods the cotton and silk effect threads are left white.

Recipe No. 124

RED ON WORSTED YARN

Omega Alizarine Red B Extra on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Omega Alizarine Red B Extra.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
4 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter the goods in this bath at 100° F., bring slowly to a boil, and dye at a boil for one hour. Then cool the bath to 170° F., and add

1 lb. Potassium Bichromate,

and continue the boiling for 3/4 of an hour.

Omega Alizarine Red B Extra possesses very good fastness to all of the common color destroying agencies, and will be found an excellent color for the dyeing of loose wool.

Recipe No. 125

BLUE ON BLEACHED COTTON YARN

Betamine Blue 8 B on 100 lbs. bleached cotton yarn. Prepare the dye bath with

½ lb. Betamine Blue 8 B.
(Geisenhemeir & Co., 189 Front St., New York, N. Y.)
½ lb. Acetic Acid.
20 lbs. Glauber's Salt.

Dye at a boil for one hour.

Betamine Blue 8 B is characterized by its extreme brilliancy of shade. Its fastness is about the same as that of ordinary direct cotton colors.

Recipe No. 126

OLIVE DRAB ON COTTON YARN

Immedial Green Yellow G Pat. on 100 lbs. cotton yarn. Prepare the dye bath with

7½ lbs. Immedial Green Yellow G Pat.
(Cassella Color Co., 182 Front St., New York, N. Y.)
16 lbs. Sodium Sulphide Crystals.
5 lbs. Soda Ash.
50 lbs. Glauber's Salt.

Bring the bath to a boil, enter the yarn, and dye at a temperature just below the boil for one hour.

Immedial Green Yellow G Pat. produces, when used as a self color, the desirable shade of greenish khaki commonly known as olive drab. It possesses very good fastness.

Recipe No. 127

VIOLET ON COTTON YARN

Thio Indigo Violet 2 B Paste on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thio Indigo Violet 2 B Paste.
(Kalle & Co., 530 Canal St., New York, N. Y.)
4 lbs. Caustic Soda.
3 lbs. Hydrosulphite Conc. Powder.

Reduce at 140° F., and dye at a temperature not higher than 105° F.

When completely reduced the dye bath is of an olive green color.

After dyeing the color may be improved by treatment in a boiling soap bath for 1/2 hour.

The standing bath requires only 70 per cent. of the amount of color.

Thio Indigo Violet 2 B Paste possesses excellent fastness to all of the common color destroying agencies.

Recipe No. 128

BLACK ON WORSTED YARN

Hat Black 3 G X on 100 lbs. worsted yarn. Prepare the dye bath with

15 lbs. Hat Black 3 G X.
(Badische Co., 86 Federal St., Boston, Mass.)
10 lbs. Glauber's Salt.

Boil for 1/2 hour, then add

6 lbs. Acetic Acid

and boil for one hour. Then add

2 lbs. Sulphuric Acid

and boil for 1/2 hour longer.

Hat Black 3 G X will be found excellent for the dyeing of material for black felt hats.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Sump Pump. The Goulds Mfg. Co., Seneca Falls, N. Y. A new electrical pump. A description appears in this issue.

Fancy Knit Effects. Ernst Boesneck, Chemnitz-Einsiedel, Germany. A circular knitting machine for producing fancy knit goods. Stripes, jacquard effects, undulating line and a wide variety of other effects can be produced. Changing from one pattern to another can be done very easily.

Card Stripping Roller. Wm. Tatham & Co., Rochdale, Eng. An improved device for cleaning cotton cards. The cleaning roller is operated either by a hand crank or by a belt at a slow speed. Fourteen revolutions of the cleaning roller strip the cylinder, the time being 25 seconds.

Textile Calculator. W. H. Fowler, Manchester, England. A textile calculator in a form suitable for carrying in the pocket. It works on the slide rule principle and is adapted for both yarn and cloth calculations.

Terry Motion. Lupton & Place, Burnley, England, have recently placed on the market a loom with the Stott & Smith terry motion attached.

Finishing Machine. Franz Werteker, Liesing, Austria. A machine for breaking or softening cotton fabrics that are made too stiff for the finishing process.

Head Motion for Looms. Schwarzenbach & Ott, Zurich, Switzerland. A head motion for dobby looms which dispenses with the use of cards, chains, paper bands or perforated wood slats.

Separator for Ring Frames. H. Ebenauer, Hof, Bavaria. An improved separator for ring spinning frames which is said to be in successful use in Bavarian mills. The frames run at a very high speed and give a large production with very little breakage of ends.

Raw Stock Drying Machine. Fielden & Co., Rochdale, England. An improved machine for drying raw stock. It can be adjusted to carry the stock from the bottom of the machine to the top or from the top to the bottom. The air draft can also be operated in either direction.

Sizing Roller. Atherton Bros., Preston, England. An improved sizing roller designed to prevent the giving way of joints as a result of the unequal expansion of the metal.

Weighting Silk. The Nitritfabrik, Koepenick, Germany. A process for treating weighted silk to prevent the decomposition of the fabric which often results in the case of heavily weighted goods.

Oiling Wool. Jacob Eichhorn, Landau, Germany. An apparatus for oiling wool as it is delivered to the card. The wool in the form of a web passes between two rollers each of which is partly submerged in the lubricating solution.

Fulling Mill. Paul Klug, Crimmitschau, Saxony. An improved method of driving the rolls of tandem fulling mills. L. H. A. Schwartz & Co., 40 Central St., Boston, Mass., are the American agents for this machinery.

A NEW ELECTRIC CENTRIFUGAL SUMP PUMP

To meet the demand for an automatically controlled pumping outfit for draining basements, handling sewage, pumping out cesspools, etc., where the liquid collects in a sump, The Goulds Manufacturing Company, Seneca Falls, N. Y., have developed a new centrifugal sump pump.

The outfit, shown at Fig. 1, consists of a vertical electric motor direct connected to a Goulds single side suction pump. The pump is connected to a cast iron pit cover, by a rigid pipe column. This cover also acts as a

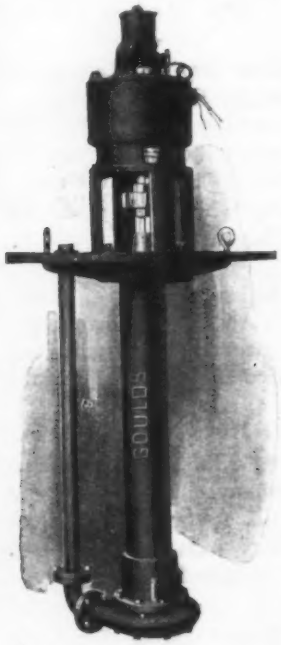


FIG. 1.

support for the motor pedestals. The shaft is enclosed by the column which connects the pump to the cover and is, therefore, protected from the liquid in the pit. A cover plate on the flange which connects the pump and supporting column permits inspection of the stuffing box.

The electric motor is controlled by a starting device, actuated by a float in the sump. When the liquid rises to a certain level and the float is lifted enough to close the switch the motor is started. It continues to operate until the sump is nearly empty, when the float drops back to the position where it opens the switch.

For service where electric current is not

FIG. 2.

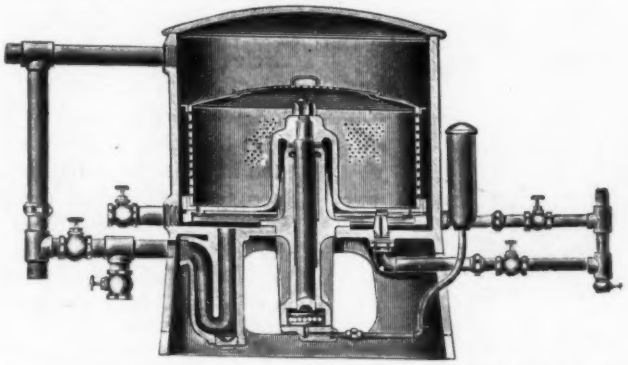
available, a similar pump has been developed, equipped with a pulley for belt drive by a gasoline engine or other power. This pump is shown at Fig. 2.

AN OIL AND WASTE RECLAIMING MACHINE

The oil and waste reclaiming machine shown in the illustration is built by the Oil and Waste Saving Machine Co., 1538 Real Estate Trust Bldg., Philadelphia, Pa., and is being offered to manufacturers on terms that guarantee a material saving from their use. The oily waste, wiping cloths or towels are placed in the basket of the machine which operates on the principle of a hydro-extractor. The rotary basket is connected with a turbine engine. The exhaust from the engine passes through the center of the basket and then through the material, finally

finding an exit through the perforated walls of the receptacle. The basket is revolved at a high rate of speed for several minutes and the oil and grease are separated from the wiping materials by the steam heat and carried off by centrifugal force. The oil flows down through the machine and through an outlet provided for this purpose. It can then be filtered and used over again the same as new oil or grease.

After this operation water and soap are put into the machine, which is put in operation again at a slow rate of speed. Steam is admitted until the water comes to the boiling point. In this way the waste and towels are thoroughly cleansed and made as good as new. The water is then drained off from the machine and the basket allowed to revolve at full speed for several minutes. This latter operation practically dries the wiping materials for further use. By the use of this machine the manufacturer can reclaim oil and grease which would otherwise be wasted and at the same time wash the wiping materials for additional use.



STEAM TURBINE DRIVEN OIL EXTRACTOR, WASTE WASHER AND DRYER

There are over 2,000 of these machines already in actual use in various plants today, including many of the leading textile mills of the country. In the list of users are the American Woolen Co., Princeton Worsted Mills, Trenton, N. J., Wamsutta Mills, New Bedford, Mass., J. & P. Coats, Ltd., Pawtucket, R. I., and the Crompton & Knowles Loom Works, Worcester, Mass. The Wamsutta Mills are cleaning 2,000 pounds of oil waste per day on one 36 inch machine.

The builders of this machine are so confident it will effect an economy that they offer to install it free of charge on condition that the manufacturer buys from the builders of the machine the silk noil wipers and the special washing powder required for washing purposes. They claim that the oil saved by the use of the machine will pay for the wiping materials. A number of textile mills have taken advantage of this offer and installed the machine with gratifying results.

NEW NELITE INDUSTRIAL REFLECTORS

The Nelite "Dome" is the latest metal reflector of the Nelite Works of General Electric Company. It is a very shallow type of porcelain enameled steel reflector, designed for service where the so-called flat-types have heretofore been employed. Its scientific design, however, gives the dome type several advantages, chief of which are the minimum glare effect and the desirable distribution of light both of which are secured at no sacrifice of efficiency.

The dome type Holophane—D'Olier reflectors are particularly adapted to service in rooms with low ceilings or where the total area to be lighted is large in comparison with the distance between units.

The Nelite Works has improved its steel department manufacturing facilities and methods, since taking over the Holophane business. Heavier steel is now used in the construction of all the smaller sizes of metal reflectors; a method of galvanizing has been perfected whereby the bodies of aluminized

reflectors are rendered impervious to moisture and fumes, and an oxi-acetyline process of welding the holders to the reflector bodies is now employed, which makes the finished units as solid as a single piece of metal. These developments have been carried on under the direction of Henry D'Olier, Jr.

AN IMPROVED BRUSH FOR WORSTED COMBS

The comb brush shown at Figs. 1, 2 and 3, is manufactured by M. Cocker & Co., 938 Spring Garden St., Philadelphia, Pa., and

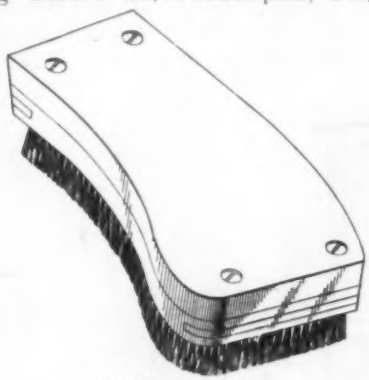


FIG 1. FRONT VIEW

embodies a number of important features which cannot fail to interest worsted combers. The brush blocks are cut from the best quality of maple and treated to make them

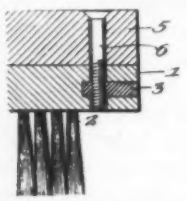


FIG. 2. SHOWING METHOD OF FASTENING BACKS TO BRUSHES

impervious to moisture, thus reducing the liability of warping and splitting. As an additional preventative the blocks are reinforced by brass strips. The reinforcing strips are held in position by copper rivets which will keep the block together if the latter should split from hard usage or jamming on the machines. Machine screws are substituted for the ordinary wood screws in order to prevent the splitting of the blocks. Bolts and cuts are dispensed with and the liability of the nuts dropping into the machine and damaging the circles is avoided. The screws are threaded directly into the brass reinforcing strips and bind on the wood only at the heads, reducing the liability of the blocks splitting and also damage to

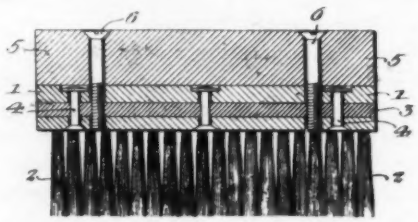


FIG. 3. END VIEW SHOWING DETAILS OF CONSTRUCTION

circles. There are no projecting screws or metal pieces to catch the wool or damage the pins. The copper comb brushes have been tested by a number of the largest worsted mills in the country with the most satisfactory results. The manufacturers are confident that the improved brushes are more durable than brushes made with wood or pressed paper blocks and equally as durable as genuine fiber blocks, while being much cheaper.

THE GREEN FUEL ECONOMIZER

A large percentage of the heat value of fuel is ordinarily wasted, due to the high temperature of the gases leaving the boiler. The following table shows the percentage of the heat of combustion present in the flue gases at various temperatures, under average conditions.

Heat of Fuel Wasted by Flue Gases
based on coal of 14,000 b. t. u., 26 lbs. of air per lb. of coal and a boiler room temperature of 70° F.

Flue Gas Temp. F.	% Heat Wasted by Flue Gases
200	6.0
300	10.6
400	15.3
500	19.9
600	24.5
700	29.2
800	33.8

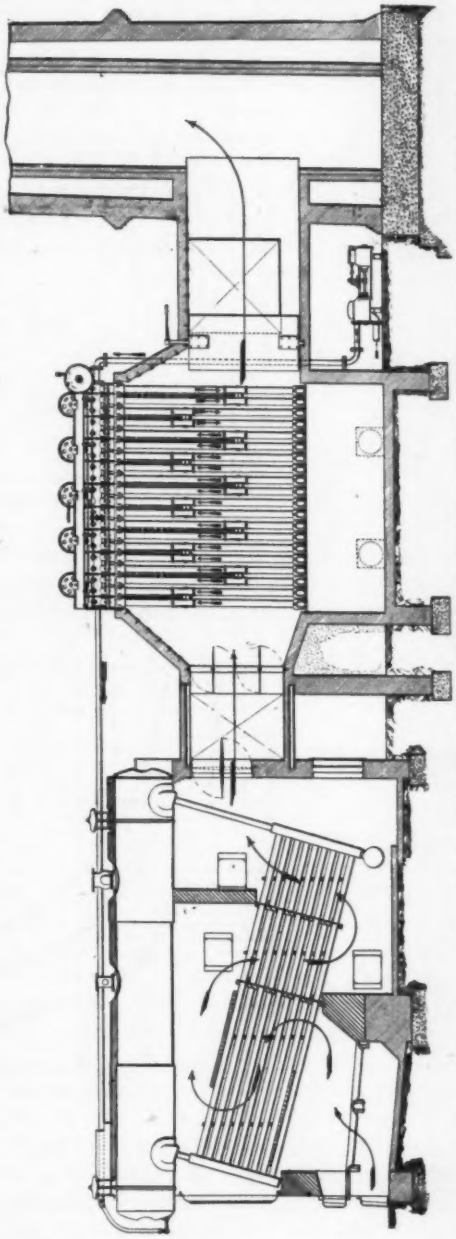
The obvious remedy for this waste of heat is to add more heating surface. With the low steam pressures once employed, more

boiler surface proved fairly effective. At a boiler pressure of 5 pounds gauge, for example, the boiler temperature is only 227° F., and additional boiler surface is reasonably effective in bringing about the absorption of more heat from the gases of combustion.

To increase boiler heating surface has been the object of various methods of constructions, as in return tubular boilers, water tube boilers, etc., and at one time 10 square feet of boiler heating surface was generally accepted as the right amount of surface to generate a boiler horse power, that is, to transmit 33,300 heat units per hour to evaporate about 30 pounds of water per hour from ordinary feed temperature to steam at boiler pressure. If the boiler as a whole is operated at this rate, some parts of the boiler transmit heat at a much higher rate, since certain parts of the boiler heating surface are in contact with much hotter gases than are others.

Recently greater demands have been made upon boiler heating surface and in the effort to reduce fixed charges and investment and to economize space it has been sought to transmit heat through the boiler surface at a greater rate, that is, to generate a boiler horse power upon only 3 or 5 square feet of surface.

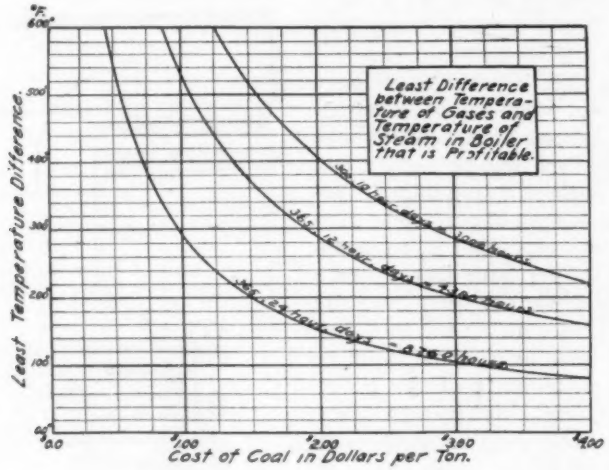
The chimney gases from boilers driven at high rates are generally somewhat hotter than are the gases from boilers driven at the old rating of 10 square feet per boiler horse power, but the small increase in heat loss is more than compensated for by the smaller proportionate radiation losses and maintenance charges upon the boiler equipment. It is also found that with high boiler pressures little extra heat can be recovered from flue gases by adding surface to the boiler. For instance, with 150 pounds gauge pressure, which is moderate, many steam turbine plants being designed for 175 or 200 pounds, the temperature of the steam is 366° F., which with a chimney flue temperature of 500° F. leaves a difference of only 134° F., under which conditions additional boiler surface will not absorb enough heat to pay for itself, and even with an infinite amount of surface the gases could not be reduced below 366° F. in temperature.



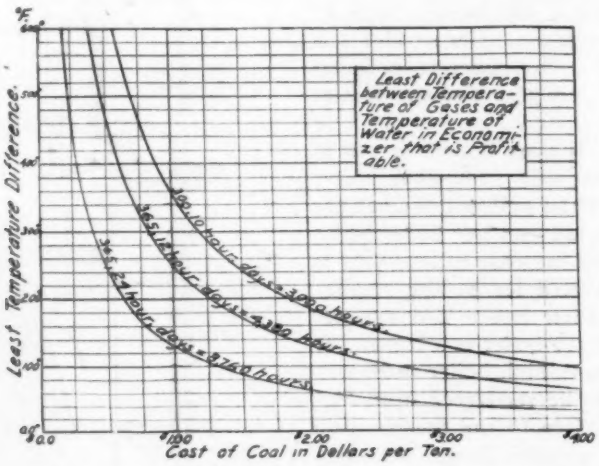
THE COUNTER-CURRENT PRINCIPLE IN STEAM GENERATION, AS EXEMPLIFIED BY GREEN'S ECONOMIZER INSTALLED IN CONNECTION WITH A WATER TUBE BOILER

The most fruitful line of development for the improvement of boiler economy, through recovery of the waste heat, was initiated in

the year 1845 by Edward Green, of Manchester. Green's economizer, or preheater, in which the heat of the chimney flue gases is utilized to preheat the feed water, has met with wide favor, having to date been applied to boilers generating 60,000,000 horse power. In England and Germany the use of the economizer is all but universal with all types of boilers and in all kinds of plants.



Green's fuel economizer, which may be described briefly as the application of the "counter-current" principle to steam boiler operation, consists of a group of vertical cast iron pipes installed in the smoke flue between the boilers and the chimney. These vertical pipes are fitted into top and bottom boxes or headers, and the boiler feed water is forced through the pipes, while the gases of combustion pass transversely among the pipes on their way to the chimney. By means of Green's economizer the temperature of the



feed water is raised from the temperature at which it is received from the hot well, say 110° F., to 250° or 300° F., depending upon the extent of economizer surface, the amount of air used to burn each pound of fuel, the baffling and arrangement of the boiler, etc. The temperature of the gases is correspond-

ingly reduced from 600° or 500° F. to 300° or 250° F. If the weight of gases per pound of fuel is about 27 pounds, and the heating value of the fuel about 14,000 B. t. u. per pound, the reduction in temperature of the flue gases will be about twice as great as the rise in temperature of the water. Each 10° F. added to the temperature of the feed water, and approximately each 20° F. taken from the temperature of the gases, represent 1 per cent. saving of fuel.

To illustrate how the economizer improves plant economy, let us assume that a pound of good bituminous coal, having a heating value of 14,000 British thermal units, is burned with 26 pounds of air of an initial temperature of 70° F., thereby producing 27 pounds of gases of combustion of a temperature of 2160° F., neglecting loss of heat in ash, by radiation, and by evaporation of contained moisture. If all the heat in the gases above 70° F., could be utilized, it would convert 12.2 pounds of water at 80° F. into steam at 175 pounds' pressure per square inch gauge, and a perfect steam engine receiving this steam and exhausting into a 28-inch vacuum would produce 1.58 horse power hours. That is, 1 horse power could be developed for an hour on a consumption of approximately two-thirds of a pound of coal. But the daily performance of actual plants varies from 1.1 pounds, as in large electric power plants, up to 5 pounds per horse power hour in many industrial plants of small or medium size. In view of the fact that coal is by far the largest of all elements of expense in the production of power, it is, therefore, worth while to inquire into the nature of the losses taking place betweeen the burning of the coal on the grates and the delivery of power from the engine or turbine.

The maximum efficiency of any heat engine in converting heat into mechanical work is limited by the difference between the temperature at which the working fluid receives heat and the temperature at which it rejects heat. In the steam engine these temperatures are the initial temperature of the steam in the boiler and the temperature at which the steam is exhausted to the atmosphere or to the condenser. The greater the difference between these temperatures, that is, the higher the initial temperature and the lower the final temperature, the greater will be the maximum efficiency theoretically obtainable.

The problem of increasing the proportion turned into work of the heat received by the steam engine or turbine has received prolonged scrutiny from innumerable engineers and scientific investigators. Under the conditions above stated, a perfect steam engine would convert into work 27.5 per cent. of the heat received by the boiler. The best performances yet recorded for steam engines or

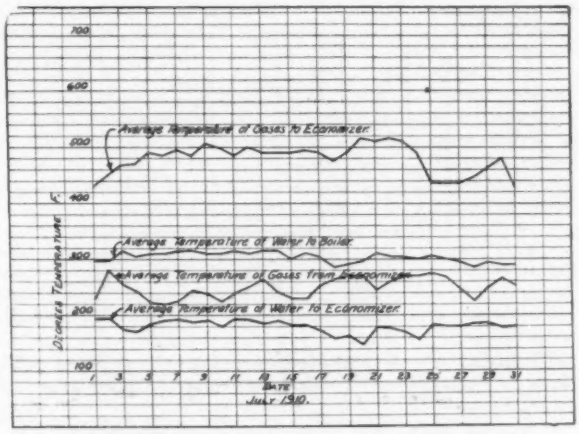


CHART SHOWING TEMPERATURES OF FLUE GASES AND OF BOILER FEED WATER IN A LARGE TRACTION POWER HOUSE EQUIPPED WITH GREEN'S ECONOMIZER

turbines or for combinations of the two is slightly over 70 per cent. of this, or about 19.3 per cent. of the total heat received by the boiler can be turned into work. The prospects of increasing the efficiency of the present most efficient steam engines and turbines working with a given temperature range are therefore limited, but there is a possibility of increasing the economy by increasing the temperature range, that is, by using higher steam pressures, superheat or better vacuum. This brings us at once to the principal element of the problem, namely, temperatures, almost or quite proportional to this difference of temperature. At first the transfer of heat from the gases of combustion is therefore very rapid, due to the great difference in temperature, but as the gases progressively become cooler, the rate of transfer falls off in like proportion, until finally a point is reached where the amount of heat transferred per square foot of boiler surface is not sufficient to pay interest, upkeep and other charges upon that surface. With the conditions of combustion assumed at the beginning of this article, this limits

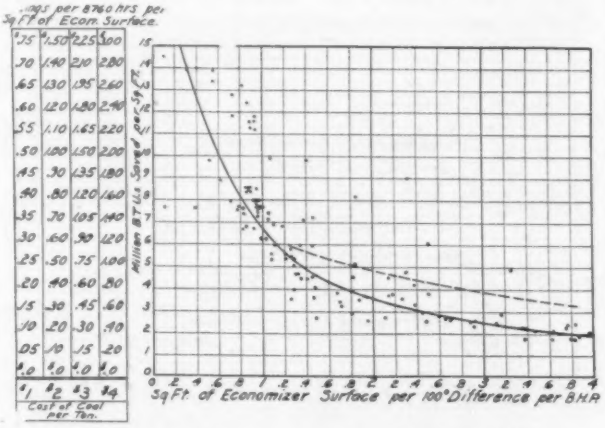

Sq Ft of Econ. Surface.
Cost of Coal per Ton.
Million B.T.U. Saved per Sq. Ft.
Sq Ft. of Economizer Surface per 100° Difference per B.H.P.

CHART SHOWING HEAT AND MONEY SAVED PER YEAR PER SQUARE FOOT OF ECONOMIZER SURFACE

tl.e efficiency of the process of transmitting the heat in the gases resulting from the combustion of the coal to the water and steam within the boiler.

The temperature of steam at 175 pounds gauge pressure is 377.5° F., and assuming the boiler surface to be unlimited in extent, so that the gases of combustion may be reduced to the temperature of the steam (and they cannot be reduced to a lower temperature by the boiler), the efficiency of the boiler in absorbing the heat produced by the combustion of the coal will be limited to 85.8 per cent. As a matter of fact, it is commercially impossible to approach this result with the boiler alone, since the rate at which heat is absorbed by a square foot of boiler surface depends upon the difference between the temperature of the contents of the boiler and the temperature of the gases, being, at lower the economical boiler efficiency to 72.6 per cent., allowing for no loss by radiation or through the grates. In actual boiler plants, where no close check is kept upon the amount of air, it is more often 60 or 65 per cent. In other words, 20 to 40 per cent. of the heat originally present in the fuel must be allowed to go to waste, unless some economical means can be devised for recovering it.

An economical means for recovering such waste heat is available in Green's fuel economizer built by the Green Fuel Economizer Co., Matteawan, N. Y. Because of the lower average temperature of the water passing through the economizer, as compared with the temperature in the boiler, the transference of heat from the gases to the water is much more rapid than in the last pass of the boiler.

Personals

James Coulton, superintendent of the Multnomah Mohair Mill, Portland, Ore., has severed his connection with that company.

A. J. Jackson, second hand in the weaving department at the Social Mill, Manville Co., Woonsocket, R. I., has resigned after two years of service. He was presented with a gold watch and chain by the help in that department.

Albert Hyde, superintendent of the American Felt Co., City Mills, Franklin, Mass., has resigned. He is succeeded by Albert Crabtree, who had charge of dyeing for the same company.

Clyde M. James, overseer of carding at the Bibb Mfg. Co., Columbus, Ga., has severed his connection with that company.

Abel E. Ball has accepted the position as overseer of winding in addition to the twisting and spooling at the Bibb Mfg. Co., Columbus, Ga.

W. H. Manning, overseer of winding at the Bibb Mfg. Co., Columbus, Ga., has resigned to accept a similar position at the Cohannet Mill, Taunton, Mass.

George H. Eddy has been elected president of the Wampanoag Mill, Fall River, Mass., to succeed the late Franklin Almy. Mr. Eddy has been a member of the Board of Directors for several years and is succeeded by James E. Newton of Fall River, Mass.

Joseph Donnolley has been appointed master mechanic at the Fort Dummer Mills, Brattleboro, Vt. He was formerly with the New England Machine & Electric Co., Pawtucket, R. I.

Thomas Whipple has accepted the position as overseer of spinning at the Fort Dummer Mills, Brattleboro, Vt. He comes from Pawtucket, R. I.

Richard Johnson, engineer of the Hamilton Woolen Co., Amesbury, Mass., has resigned to accept a similar position at Capac, Mich.

Fred Hilton, for a number of years in charge of the mechanical department of the American Printing Co., Fall River, Mass., has resigned. George Gilmore has been promoted to take general charge of the mechanical department as successor to Mr. Hilton.

Arthur Hilton, overseer of the finishing department at the American Print Co., Fall River, Mass., has severed his connection with that company.

Thomas Bredbury has been appointed superintendent of the French spinning department at the Wood Worsted Mills, Lawrence, Mass.

George Gahm, who has been assistant superintendent of the Wood Worsted Mills, Lawrence, Mass., has been appointed superintendent of the English spinning department.

P. J. Carey, overseer of finishing at the James & E. H. Wilson Mill, Pittsfield, Mass., has severed his connection with that company.

F. W. Birkenshaw, formerly overseer of finishing at the Aetna Mills, Watertown, Mass., has been engaged to take charge of finishing at the James & E. H. Wilson Mill, Pittsfield, Mass.

Walter Yeaman, overseer of dyeing for J. Humphrey & Sons, Moncton, N. B., has resigned to accept a similar position with the Trent Valley Woolen Mills, Campbellford, Ont., Canada.

John L. Phillips has accepted the position of overseer of weaving at the Hamburger Mills, Columbus, Ga. He comes from Atlanta, Ga.

J. I. Painter has accepted the position as overseer of spinning at the Banna Mfg. Co., Goldville, S. C. He was formerly employed at Whitmire, S. C.

Frank Wilson has been appointed superintendent of the Dallas Cotton Mills, Dallas, N. C. He comes from Gastonia, N. C.

J. H. Arrington, recently of Meridian, Miss., has accepted the position of overseer of spinning at the Selma Mfg. Co., Selma, Ala.

J. I. Cain, superintendent of the Knoxville Cotton Mills, Knoxville, Tenn., is also filling position of superintendent of the Knoxville Spinning Mills, at the same place.

W. H. Hearne, superintendent of the Magnolia Mills, Charlotte, N. C., has resigned to accept position of overseer of spinning at the Richland Mills Co., Columbia, S. C.

W. B. Hixon has accepted the position as overseer of spinning at the Enoree Mfg. Co., Enoree, S. C.

R. G. Vanadore, formerly of Rockingham, N. C., has accepted the position at the Fairmont Mills, Fairmont, S. C., as overseer of spinning.

C. C. Brigman, overseer of spinning at the Richland Mill, Columbia, S. C., has resigned to accept a similar position with the Granby Mill, of the same place.

N. M. Neal has accepted the position as overseer of weaving at the Buck Creek Mills, Siluria, Ala.

William Miller has accepted the position as overseer of carding at the Hartsville Cotton Mills, Hartsville, S. C. He was formerly employed at the Marlboro Mills No. 3, McColl, S. C., as superintendent.

E. C. Fleming has been promoted from assistant to superintendent of the Kosciusko Cotton Mills, Kosciusko, Miss., succeeding Mr. Bradley.

Ben Green has accepted the position of overseer of spinning at the Canton Cotton Mills, Canton, Ga. He was formerly employed at Huntsville, Ala.

L. J. Brown has accepted the position as overseer of spinning at the Arista Mills, Winston-Salem, N. C. He comes from Kannapolis, N. C.

S. B. Ware has accepted the position as overseer of spooling and twisting at the LaGrange Mills, LaGrange, Ga.

D. I. Williams has been appointed superintendent of the Marlboro Mill No. 3 at McColl, S. C. He comes from Lumberton, N. C.

J. F. Auten has accepted the position of overseer of spinning at the Nims Mfg. Co., Mt. Holly, N. C.

R. L. Jordan, formerly of Tucapau, S. C., has accepted the position as overseer of carding at the Fairmont Mills, Fairmont, S. C.

Robert McMahon, overseer of spinning at the Louisville Woolen Mill, Louisville, Ky., has resigned to accept a similar position with the Peerless Woolen Mill, Rossville, Ga.

Tom Dyson, designer at the Sutton Mill, North Andover, Mass., has severed his connection with that company to accept a position of superintendent and designer of the Franklin Glazier Co., South Glastonbury, Conn.

A. H. Gledhill, agent of the Franklin, Glazier Co., South Glastonbury, Conn., has severed his connection with that company.

Ernest Rhodes, superintendent and designer at the Lebanon Mills, Lebanon, N. H., has resigned to accept a similar position at the Bellingham Woolen Co., North Bellingham, Mass.

Paul T. Wise, who has been superintendent of the Bigelow Carpet Co., Clinton, Mass., has accepted the position of manager of the Chelsea Fibre Mills Co., Brooklyn, N. Y.

Frank Henries has been appointed overseer of finishing at the Hoosac Worsted Mill, No. Adams, Mass. He comes from the Earnsdale Mill, Clinton, Mass.

Samuel Antcliffe has accepted the position as overseer of dyeing at the Hewson Pure Wool Textiles, Ltd., Amherst, N. S., Canada.

J. C. Cameron has accepted the position as superintendent and designer at the Lebanon Mill, American Woolen Co., Lebanon, N. H. He was formerly superintendent of the Sykes Woolen Mills Co., Reynoldsville, Pa.

Gustave Prevost has accepted the position as superintendent of the Janero Dye Works, Third and Huntington Aves., Philadelphia, Pa. He comes from Woonsocket, R. I.

W. S. Williams, recently connected with the chemical staff of A. D. Little, Inc., Boston, and formerly chemist in several large print works, assumes the position of superintendent of the Glenwood Works, Medford, Mass., on July 1.

George Arnold, vice-president of the Forstmann & Huffmann Co., manufacturers of woolen goods, Passaic, N. J., died at Munich, Germany, at the age of 55 years. He was a native of Germany and is survived by a wife.

A. W. Wilmont has accepted the position as overseer of weaving at the Hamilton Mfg. Co., Lowell, Mass. He was formerly employed at Newburyport, Mass.

Daniel F. Welch, overseer of spinning at the H. T. Murdock & Co.'s Mill, Proctorsville, Vt., has severed his connection with that company. He has returned to his home in Worcester, Mass.

Walter D. West has accepted the position as superintendent of the Raritan Woolen Mill, Raritan, N. J. He comes from Norwalk, Conn.

W. J. Wilson, superintendent of the Oxford Linen Mills, North Brookfield, Mass., has severed his connection with that company.

Arthur Mansell has accepted the position as overseer of finishing for H. T. Murdock & Co.'s mill, Proctorsville, Vt. He was formerly employed at the Newport Woolen Co., Newport, N. H., but later with the Concord Mfg. Co., Penacook, N. H.

Arthur Elston has accepted the position as superintendent of the Multnomah Mohair Mill, Portland, Ore. He comes from the Elston Worsted Co., Providence, R. I.

Charles A. Wyman, overseer of weaving at the Camden Woolen Co., Camden, Me., has resigned and has gone to his home at Kezar Falls, Me. He was presented with a handsome stick pin and a gold watch by the help in the weaving department.

L. J. Morin, overseer of weaving at the Kennebec Mill, Fairfield, Me., has accepted a similar position at the Camden Woolen Co., Camden, Me.

Edmund M. Brown has accepted the position as designer at the Anchor Mill, American Woolen Co., Pascoag, R. I.

Rufe Ellington has accepted the position as overseer of spinning at Mill No. 2, Randleman, N. C.

Charles Rivett, overseer of weaving at the Fall River Iron Works Co., Fall River, Mass., has resigned. He is succeeded by Alphonse Thibault.

H. L. Hewson, president and general manager of the Hewson Pure Wool Textiles, Ltd., Amherst, N. S., Canada, has severed his connection with that company.

George L. Fisher, late superintendent of the Stansfield's Ltd., Truro, N. S., Canada, has been appointed general manager and one of the directors of the Hewson Pure Wool Textiles, Ltd., Amherst, N. S.

J. Leiper has been appointed overseer of weaving at the Gosnold Mill, New Bedford, Mass.

Henry Mitchell, overseer of carding at the Greene & Daniels Mfg. Co., Pawtucket, R. I., has severed his connection with that company.

George W. Merrow, overseer of carding at the Hebron Mfg. Co., Hebronville, Mass., has severed his connection with that company.

Fred Butterworth has been engaged as overseer of carding at the United States Cotton Co., Central Falls, R. I.

M. C. O'Brien, overseer of dyeing at the Hewson Pure Wool Textiles, Ltd., Amherst, N. S., Canada, has resigned.

J. F. Clark, superintendent of the Echota Mills, Calhoun, Ga., has resigned to accept a similar position at the Martel Mills, Egan, Ga.

W. W. Gregg has accepted the position as overseer of spinning and winding at the Glenco Mills, Columbia, S. C. He comes from Kinston, N. C.

R. E. English has been promoted to the position of superintendent of the Bibb Mfg. Co.'s Mill No. 2 at Macon, Ga.

G. S. Giffin has been appointed agent of the Faulkner Mfg. Co., North Billerica, Mass. He was formerly employed at the Merrimack Woolen Co., Lowell, Mass.

A. W. Slocum, agent of the Faulkner Mfg. Co., North Billerica, Mass., has severed his connection with that company.

J. J. Edwards has been promoted from night overseer to superintendent of the Taylor Mills, Reynolds, Ga.

B. C. Roberts has been appointed superintendent of the Columbia Cotton Mills, Columbia, Tenn.

T. F. King has accepted the position as overseer of carding at the Martel Mill, Egan, Ga. He comes from Anniston, Ala.

W. W. Duncan has been appointed superintendent of the Princeton Mfg. Co., Athens, Ga.

Elwood Ward has accepted the position as overseer of weaving for Louis Kraemer & Co., Stony Creek Mills, Stony Creek, Pa. He was formerly employed at the Woolen Mfg. Co., Beaver Dam, Wis.

J. D. Thomas has accepted the position as overseer of knitting at the Sunset Knitting Co., San Francisco, Cal.

Daniel J. Carey, who has been overseer of dyeing for the past nine years at the Boston Mfg. Co., Waltham, Mass., has severed his connection with that company.

Peter Graham has accepted the position as overseer of dyeing at the Boston Mfg. Co., Waltham, Mass. He was formerly employed at the Renfrew Mfg. Co., Adams, Mass.

George Miller has accepted the position as overseer of spinning at the Merrimack Mills, Huntsville, Ala.

Grant Estlow has been appointed superintendent of the Pomona Mills, Greensboro, N. C.

R. E. Smith has been appointed superintendent of the Richmond Spinning Co., Chattanooga, Tenn.

C. L. Faulkner has been appointed superintendent of the Toccoa Cotton Mills, Toccoa, Ga.

B. B. Fleming has been appointed superintendent of the Conneross Mills, Anderson, S. C.

B. F. Barnes, formerly superintendent of the Fulton Bag & Cotton Mills, Atlanta, Ga., has accepted a similar position with the Echota Mills, Calhoun, Ga.

David A. Lapraik, overseer of dyeing at the Faribault Woolen Mills Co., Faribault, Minn., has severed his connection with that company.

Clyde M. James has accepted the position as overseer of carding at the Hebron Mfg. Co., Hebronville, Mass. He comes from the Bibb Mfg. Co., Columbus, Ga.

Arthur O. Torrey has accepted the position as overseer of finishing at the Earnsdale Worsted Mills, Clinton, Mass. He was formerly employed at the Lebanon Mill, Lebanon, N. H.

George H. Smith has been appointed overseer of carding at the Yantic Woolen Co., Yantic, Conn. He comes from Westerly, R. I.

William T. Waterhouse, overseer of carding at the Yantic Woolen Co., Yantic, Conn., has severed his connection with that company.

W. S. Lowe has accepted the position as superintendent of the G. H. Tilton Hosiery Co., Lowell, Mass., branch mill of their Tilton, N. H., plant, which has recently been started.

A. B. Day, formerly superintendent of the Franklin Mills, Franklin, N. H., has accepted a position as second assistant agent at the Burlington Mill, American Woolen Co., Winooski, Vt.

David Blain, for over twenty years overseer at the American Thread Co., Holyoke, Mass., has severed his connection with that company.

Richard Thomas, for several years connected with the Prospect Worsted Mills, Lawrence, Mass., and later with the Cleveland Worsted Mill, Cleveland, O., has been transferred to the Odsonia Worsted Mill, Jamestown, N. Y., as superintendent of drawing, spinning and twisting. He succeeds James Wilson.

Thomas Plouff, overseer of finishing at the Kent Mfg. Co., Centerville, R. I., has severed his connection with that company.

W. H. Mooney has accepted the position as overseer of carding at the Bibb Mfg. Co., Columbus, Ga. He comes from the Fitchburg Yarn Co., Fitchburg, Mass.

A. S. Thomas has accepted the position as superintendent of the Oxford Linen Mill, North Brookfield, Mass. He was formerly employed as general superintendent at the I. E. Palmer Co., Middletown, Conn.

Thomas Greenwood has accepted the position as overseer of dyeing at the Fay Stocking Co., Elyria, O.

Andrew Flynn has accepted the position as overseer of carding at the Amos Abbott Co., Dexter, Me. He was formerly second hand at this mill and succeeds James Scott.

Richard Stark has resigned as manager of the Jansen & Pretzfeld Silk Mills, Paterson, N. J.

O. A. Pendleton has accepted the position as overseer of spinning at the Panola Mills, Greenwood, S. C.

E. C. Hendrick, overseer of carding at the Marlboro Mills, No. 4, McColl, S. C., has resigned to accept a similar position with the Hannah Pickett Mill, Rockingham, N. C.

J. W. Herring, overseer of twisting and spooling at the Athens Mfg. Co., Athens, Ga., has resigned to accept the position as overseer of spinning and winding at the Standard Knitting Mills, Knoxville, Tenn.

DEATHS.

Caleb J. Milne, a well known manufacturer and financier of Philadelphia, died at the Charing Cross Hospital, London, England, at the age of 74 years. Mr. Milne was head of the textile manufacturing concern of C. J. Milne & Sons, at Eleventh St. and Washington Ave., Philadelphia. He has been a widower for several years, and is survived by two sons, Caleb J., Jr., and David Milne.

John T. Kille, a retired cotton merchant, died recently at the age of 93 years. Mr. Kille was a member of the manufacturing firm of Kempton & Kille, Manayunk, Philadelphia. For thirty-three years he was secretary of the Cambria Iron Co. About twenty-five years ago he retired.

William Rhodes Arnold, one of the best known woolen manufacturers in Rhode Island, died at the Arnold Homestead at Posnegansett Lake, Warwick, July 2, at the age of 73 years. He had been ill for more than six months and his death, from diseases incidental to old age, had been expected for some time. In 1868 he was appointed superintendent of the Valley Worsted Mills in Olneyville, which position he held until 1885, when the concern was reorganized and he became a member of the firm, holding the offices of treasurer and general manager. The concern went into the American Woolen Co. in 1899 and following this Mr. Arnold made a tour of Europe. In a sense he retired from active business, but he was, nevertheless, heavily interested in real estate and president of the Arnold Real Estate Co., a director in the Central Real Estate Co., and in the Stewart Street Land Co., also treasurer of the Posnegansett Ice Co. Mr. Arnold is survived by two sons.

Edward Rice, formerly boss finisher at the Anderson Woolen Mill, American Woolen Co., Skowhegan, Me., died at his home on North St., July 1. He had been in failing health for a few years, and the end was not unexpected. He is survived by a wife, two children and two brothers.

Amory A. Lawrence, one of the oldest manufacturers of cotton goods in the United States and president of the Ipswich Mills, Ipswich, Mass., Salmon Falls Mfg. Co., Salmon Falls, N. H., also head of Lawrence & Co., dry goods commission merchants, Boston, Mass., died on July 6 at the age of 64 years. He had been in poor health since April, and was a brother of Bishop Lawrence of the Massachusetts Episcopal Diocese.

S. L. Parker, overseer of carding and spinning for J. A. Humphrey & Sons, Moncton, N. B., Canada, died at his home in that city after a brief illness. He was 43 years of age and had been formerly engaged at Houlton, Me.

Roswell Sargent Douglass, a prominent woolen manufacturer, died at his summer home at Boot Pond, Plymouth, Mass., at the age of 71 years. Mr. Douglass operated the Plymouth Woolen Mill at Plymouth, Mass., in partnership with Henry Sawyer. This mill was later bought by the American Woolen Co. He was also connected with a large woolen mill at Franklin Falls, N. H. He was a prominent Methodist and was largely instrumental in building the Memorial Methodist Church of Plymouth. A wife and eight children survive him.

Arthur Deute, superintendent of the Oregon City Woolen Mill, Oregon City, Ore., died at his home in that city. He had been in the employ of this company for over twenty-six years and had worked up from the ranks. He had been a most faithful and intelligent employe.

William Pigott died at Kenosha, Wis., of old age. Of late years he had led a retired life and spent his reclining days with his daughter at Kenosha. He is survived by three children. Mr. Pigott was at one time connected with the Whitmanville Knitting Mills.

Isaac E. Sutton died at his home in Totoaw, N. J., at the age of 49 years. He was the organizer of the Hutton & Potts Co., but since the retirement of that firm he has been associated with the Hebert Silk Co., Paterson, N. J. A wife and two sons survive him.

Robert E. Reynolds, a well known overseer of finishing on woolen goods, died recently at the age of 39 years. His last position was that of overseer of finishing at the A. D. Clark Co., Rochdale, Mass., which he had held for over four years. Previous to that time he had been employed at the Connecticut Woolen Co., Willington, Conn., for several years and with the Merchants Woolen Mill of East Dedham, Mass., for over twelve years. He is survived by a wife who resides at East Dedham, Mass.

Louis F. Dommerich, who was scheduled to sail for Europe on July 23, died at his home in New York City at the age of 71 years. His death occurred after a short illness which necessitated an operation. He was connected with the dry goods commission house of L. F. Dommerich & Co., New York City. Mr. Dommerich is survived by a widow, three sons and one daughter.

Isaac Blaisdale died at his home in Philadelphia at the age of 58 years. Mr. Blaisdale had been superintendent of silk and full fashioned hosiery mills in this country and in Portugal. For a number of years he had been employed in large mills in England. His death was caused by slipping over a wire nail at the mill where he was employed whereby he was injured internally, an operation being necessary which did not prove successful.

Mill News

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the TEXTILE ADVANCE NEWS, issued weekly by the publishers of the TEXTILE WORLD RECORD, at $15.00 per year.

COTTON.

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New Mills.

*New Jersey, Bridgeton. The Bell Cotton Fabric Co. has been granted a charter with capital stock of $50,000 to manufacture, dye and bleach cotton and silk fabrics and yarns. The incorporators are Robt. E. Bell, Lutfer Bateman and James A. Turner. Several weeks ago it was reported that Robt. E. Bell, 43 East Ave., had purchased machinery for the purpose of manufacturing Turkish towels and would probably form a company to operate the business.

*North Carolina, Gastonia. Work is to be started at once on buildings for the Armstrong Cotton Mills Co., and Col. C. B. Armstrong expects that manufacturing will be begun in November. The company has just organized with Col. C. B. Armstrong, president, treasurer and buyer; R. B. Babington and D. M. Jones, vice-presidents; A. K. Winget, secretary, and C. M. Dunn, superintendent. 3,000 spindles and preparatory equipment will be installed to make 4s to 14s combed yarns. Electric power will be used.

Pennsylvania, Clifton Heights. James F. Cumberland and others are about to form a company and equip a mill with about 40 looms on which they will manufacture Turkish towels. They are unable at the present time to state where the mill will be located or when it will be started up.

*South Carolina, Kershaw. The officers of the Kershaw Cotton Mill, recently organized, have decided on a site and purchased 38 acres near the Kershaw Oil Mill. A company has been formed under the name of the Kershaw Brick Co. to manufacture brick for the construction of buildings. Leroy Springs, president of the Lancaster Cotton Mills, Lancaster, S. C., is president of the Kershaw Cotton Mill; John T. Stevens is vice-president, and J. M. Carson, Kershaw, secretary and treasurer.

*Tennessee, Prendergast. Application has been made for a charter for the Prendergast Cotton Mills with capital stock of $100,000. W. S. Probat, John Morrow, W. R. Fronobarger, A. E. Walthall and R. M. Copeland are the incorporators. Earlier reports have noted that it is proposed to build a cotton yarn mill to make 20s yarn and that W. J. McLendon, Jr., of the Capitola Mfg. Co., Marshall, N. C., will be president. Bids for construction work will be opened about July 15.

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Enlargements and Improvements.

Alabama, Roanoke. An extension 100 ft. long will be built on the plant of the W. A. Handley Mfg. Co. and will be equipped with 65 looms for weaving heavy duck 120 inches wide.

*Connecticut, Danielson. According to a local report, the larger part of the old looms in the plant of the Danielson Cotton Co. will be taken out to make room for new automatic looms. A force of men is engaged at present in removing the card room equipment from the lower floor of one of the mills, which will be used entirely for weaving, and also in taking out drawing and spinning frames which are being shipped away. There was a report two weeks ago that the plant would be used principally for weaving the yarn being purchased. It has been noted that the property has been taken over by new interests.

*Connecticut, Killingly. Excavations for the foundations for the new weave shed to be built at the Attawaugan Mill of the Attawaugan Co. have been started. The addition is to be located near the south end and to the west of the present plant and will be equipped for weaving fancy cotton goods before the first of December. C. H. Truesdell is superintendent and buyer.

*Georgia, Conyers. Work is almost finished on the small addition, 32 by 50 ft., to the plant of the Milstead Mfg Co. It was noted in May that 600 spindles and 10 looms for manufacturing duck would be installed.

Georgia, Douglasville. Twenty new looms are to be installed in the Lois Cotton Mills and contract for this equipment has been awarded.

*Georgia, Dublin. The Oconee River Mills, a company recently organized by the officers of the Eastman Cotton Mills of Eastman, will not take over the plant and business of the Eastman Mills as stated in some reports, but will operate the old Georgia Cotton Mills in Dublin, as we reported in May. The work of getting the plant in shape for manufacturing after its long idleness is going forward rapidly and 200 new automatic looms are being installed. When the changes are completed there will be 5,200 ring spindles and 200 automatic looms which will be operated on 40-inch 48 by 48—3.25 sheetings. The machinery will be started up about September 1. The officers are the same as the officers of the Eastman Cotton Mills; W. N. Lietch, president; C. H. Peacock, treasurer, and S. C. Smyly, general manager.

Georgia, Greensboro. The Mary Leila Cotton Mill will enlarge by the addition of 6,000 spindles and 150 looms. The present building will be used for carding and spinning and a new mill will be erected for weaving.

*Georgia, Newnan. Good progress is being made in the addition of 13,312 spindles in No. 2 Mill of the Newnan Cotton Mills and they have completed plans for installing new electrical equipment to be furnished by the General Electric Co., including 17 new motors ranging from 5 to 100

h. p. capacity, three 200 and two 15 k. v. a. transformers and a switchboard. Power will be obtained from the Columbus Power Co.

Georgia, Palmetto. Contract for additional card room equipment has been awarded by the Palmetto Cotton Mills.

*Georgia, Valdosta. The increase to be made by the Strickland Cotton Mills will consist of an addition to be built before the middle of September and equipped with 1,248 new spindles and 4 fly frames.

*Maine, Lewiston. Ground has been broken for the foundation of the Bates Mfg. Co.'s large new weave shed. Particulars have been given previously.

Maryland, Savage. It is reported the Savage Mfg. Co., manufacturers of cotton duck, will reequip the carding and spinning departments of their plant.

*Massachusetts, Easthampton. In connection with the improvements in the carding, combing and spinning departments of the West Boylston Mfg. Co., arrangements are being made for installing new electric drive equipment in the mills. Twenty General Electric Company motors ranging from 15 to 150 h. p. capacity will be used.

*New York, Utica. In addition to other changes, previously reported, the Skenandoa Cotton Co. will remodel the cotton house.

North Carolina, Lexington. Four new spinning frames and 8 deliveries of drawing frames have been contracted for by the Dacotah Cotton Mills.

*North Carolina, Kannapolis. It is stated the Cannon Mfg. Co. will spend about $600,000 enlarging its plant here. As noted in earlier reports, the foundation has been put in for a 2-story waste yarn mill and preliminary work started on a new bleachery and machine shop.

North Carolina, Lawndale. A filtration plant for the purpose of securing pure water for their dyeing and bleaching department has been installed by Hungerford & Terry, Inc., filtration engineers of Philadelphia, in the plant of the Cleveland Mill & Power Co., manufacturers of carpet warps, twines, wicks and clothes lines.

*North Carolina, Rockingham. Good progress is being made on the addition to the plant of the Pee Dee Mfg. Co. by T. C. Thompson & Bro., the contractors. It has been noted that 2,800 spindles and 136 box looms for weaving plaids and shirtings would be installed.

North Carolina, Rockwell. New machinery equipment for the Barringer Mfg. Co. has arrived and will be set up as soon as possible. The foundation is being laid for a large warehouse which is to be constructed during the summer.

*North Carolina, Smithfield. Contract for the equipment to be installed in the addition built at the plant of the Ivanhoe Mfg. Co., previously reported, has been awarded.

*North Carolina, Vass. The reported increase at the plant of the Vass Cotton Mill Co. will consist of 1,440 spindles and 1 winder to be installed in about four weeks. This will give a total capacity of 5,760 spindles. 7s to 32s yarns are manufactured.

Pennsylvania, Philadelphia. J. & W. Wardlow, operating 40 looms on table damask at 1615 Foulkrod St., Frankford, will take over the portions of the building recently vacated by the Taylor Textile Company, who have retired from business, and install a number of new looms for the purpose of increasing their production. They sell through New York.

*Rhode Island, Pawtucket. Two additions are being built at the plant of Greene & Daniels Mfg. Co., Inc., one of which will be 2 stories high, 67 by 99 ft., and the other, 1 story high, 34 by 104 ft. The new space will be used for carding and combing for tire fabric yarns, a new product for this concern. They expect the addition to be completed about September 1 and it will be a little later than that date before all the machinery is in operation. At the time of the reorganization of this concern several months ago, it was stated that tire fabric yarns would be added to the products and possibly looms for weaving tire cloth. It is not their present intention to weave the fabrics. Machinery contracts have been awarded. Henry C. Dexter is treasurer and Chas. E. O'Gara is superintendent.

Rhode Island, Woonsocket. The Manville Co. recently equipped the dye house in the Social Mills with one of the filtration plants supplied by Hungerford & Terry, Inc.

South Carolina, Cateechee. A new spinning frame has been ordered by the Norris Cotton Mills Co. to balance the spinning and weaving departments.

South Carolina, Greenville. A small number of additional spindles will be installed by the F. W. Poe Mfg. Co.

*South Carolina, Greenville. It has been decided to make the proposed increase in the capital stock of the Greenville Cotton Mills from $500,000 to $900,000 and work has been started on an increase of 12,000 spindles, making a total of 40,000 spindles. J. C. Self is president and treasurer and P. D. Wade, superintendent.

South Carolina, Lancaster. The Lancaster Cotton Mills will build a new mill and add 60,000 spindles and 1,500 looms. A general rearrangement will follow the completion of the new building, all preparatory machinery being placed in the present mill building and all looms being set up in the new weave shed that is to be erected, which will be over 900 ft. long and approximately 250 ft. wide. There were rumors recently that Leroy Springs, the president of this company, would build a new 50,000-spindle mill, but this is the enlargement that was referred to. Mr. Springs is also interested in the projected cotton mill at Kershaw and has been elected president by the recently organized company at that place.

South Carolina, Liberty. The Liberty Cotton Mills, recently purchased by J. M. Geer, president

and treasurer of the Easley (S. C.) Cotton Mills and interested in other cotton mill companies, will be known in the future as Easley Cotton Mills No. 2. Mr. Geer plans to add 12,000 spindles and 300 looms, doubling the plant according to report and has purchased this equipment.

*South Carolina, Pickens. An addition 85 ft. long will be built on the plant of the Pickens Mill to provide space for the additional equipment which it has been reported would be installed. The machinery has been contracted for and the addition will be erected in the very near future. 6,000 new spindles and 160 looms will be added, giving a total of 22,000 spindles and 606 looms.

South Carolina, Tucapau. Contract has been awarded by the Tucapau Mills for electric power equipment to cost about $10,000.

*South Carolina, Whitmire. Work on the new mill for the Glenn-Lowry Mfg. Co. is up to the third story. This mill is to be 440 by 130 ft., 3 stories high, and will be equipped with 30,000 spindles and 700 looms for the making of print cloths. Construction work was started in February.

*Texas, McKinney. In 30 to 50 days, work will be started on an addition to the plant of the Texas Cotton Mill Co. to provide space for new equipment consisting of about 5,000 spindles and 160 looms. The officers hope to have the addition completed and the new machinery in operation about January or February, 1913. The same class of goods that is manufactured at present, that is, cheviots, denims, pin checks and awning stripes, will be manufactured on the new equipment. This enlargement will double the capacity of the plant which now has 5,152 spindles and 160 looms. J. H. Ferguson is president; W. B. Newsome, treasurer, and Paul K. McKenny, general manager and buyer. There is a dye house equipped for new stock dyeing and steam power plant.

Texas, Cuero. At a meeting of stockholders of the Guadalupe Valley Cotton Mills, several extensions and improvements were voted, including the erection of a cotton warehouse, 1 story high, 100 by 100 ft., and a wing on the main building, 50 by 60 ft., to be used for a clothroom. Cotton ducks are manufactured on 7,000 ring spindles and 160 looms.

*Virginia, Fries. Recently 5,000 spindles were added to the equipment of the Washington Mills, giving a total of 55,000 spindles. This new equipment is in operation.

*Virginia, Roanoke. It is expected the new equipment of the Twine Mills Corp., including 3,000 spindles, will be in operation in 30 days.

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Mills Starting Up.

*Georgia, Senoia. The Senoia Duck Mfg. Co. has been incorporated with capital stock of $100,000 by W. A., G. N. and E. P. Robinson. It was noted last week that the new company is a reorganization of the Senoia Duck Mills headed by W. A. Robinson of Cedartown, and that the plant will be started up before the end of July.

*North Carolina, Burlington. The Bellevue Mills No. 1 will be started up in a few days by the King Cotton Mill Corp., the new owners, on cotton yarns in coarse numbers, white and colored cloths, checks, stripes, etc. Some changes will be made after the mill is running. There are 3,328 spindles and 146 looms in the mill, also raw stock dyeing equipment and steam power plant. H. D. Eichelberger, Richmond, Va., is president; Thos. F. Jeffress, Richmond, Va., treasurer; J. G. King, Burlington, agent and buyer. Fredk. Vietor & Achelis are the selling agents.

South Carolina, Charleston. A corporation organized under the name of the Royal Mills with capital stock of $250,000 has been formed to take over and operate the plant of the Royal Bag & Yarn Mfg. Co., which was sold out at public auction some months ago and purchased by F. W. Wagener. No definite announcement can be made as to the parties interested in the new concern or the date on which manufacturing will begin as plans have not been fully determined upon and no official statement can be secured.

WOOLEN.

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Enlargements and Improvements.

Connecticut, Killingly. A large part of the equipment in the weave room and other departments of the Assawaga Co., Inc., is to be replaced by new machinery. A new engine is being installed in the power department. This company manufactures dress goods and suitings on 12 sets and 70 looms. Angus Park is general manager and buyer.

*Massachusetts, Holyoke. The addition to the Germania Mills will be in the form of 2 stories added to the present spinning mill which is 120 by 182 ft. Worcester contractors will do the work. It will be of brick, concrete and steel with tar and gravel roof.

*Massachusetts, Millbury. The Millbury Mills, a branch of the Uxbridge Worsted Co. of Uxbridge, will erect a new building at a cost of $1,800 and equip it as a worsted yarn spinning department. Work has been started on the foundation. This company has purchased the worsted drawing and spinning frames formerly operated by Brown & Whittier at Lawrence.

*Massachusetts, Oxford. Construction work has been completed on the new 4-story brick mill of Andrew Howarth & Son, erected to replace the plant burned early in January. As noted in an earlier report, the new mill is 143 by 54 ft., with capacity of 4 sets of cards and 40 looms to be operated on white flannel. The finishing room, scouring room and machine shop are in the basement, which has a concrete floor. The spinning department will be on the top floor; the card room on the third floor, and the weaving room on the second floor. The mill is modern in every respect with running water, steam heating and electric lighting service, complete sprinkler system and large window surface. Machinery equipment is being set up and put in running order and manufacturing will be started in August.

*Massachusetts, Uxbridge. Additions being constructed for the Uxbridge Worsted Co. are fast nearing completion. The addition at the east end of the plant will be 3 stories high and will be used to increase the finishing department. The addition connecting the main mill with the old mill formerly operated by J. R. & C. W. Scott, will be used for dye house purposes.

Massachusetts, Spencer. Dufton Bros. are building a new card room which is nearly completed and have recently started work on another addition which will be used as a spinning room. They occupied a part of the Priscilla Mill which has been taken over by the Bigwood Woolen Co. and were obliged to make these enlargements to provide space for their equipment which was taken out of the Priscilla Mill.

*Massachusetts, West Rutland. It is reported the Daniels Worsted Mills will remove the main plant from Worcester to combine it with the branch here before the first of October. The contractor, E. D. Ward, has already begun the erection of the new brick addition which is to be 3 stories high, 162 by 48 ft., and when this is fully completed the 80 looms and other equipment operated in Worcester will be moved here and the company's real estate there sold. The chief reason for their removing to West Rutland is said to be the large supply of water that is available.

Michigan, Eaton Rapids. A new steel smoke stack is being erected at the plant of the Eaton Rapids Woolen Mills.

*Minnesota, St. Peter. J. C. Brinker, formerly of LaCrosse, Wis., the new owner of the woolen mills here, formerly operated by Edward Bornemann, will make a specialty of woolen knitting yarns and is in the market for a small waste duster, cone winder, burr picker, 40-inch traverse grinder and 4 and 5-inch belting. Two small additions are to be constructed. A second-hand set of cards and a mule have recently been installed.

*New York, Fulton. It has been noted that the Fulton Worsted Mills of the American Woolen Co. would make some changes in the power department owing to the work of the State on the barge canal. Contract for a new power house has been awarded to E. W. Pitman & Co. of Lawrence, Mass. Recently contract was awarded for new water wheels to be direct connected to generators.

New York, Jamestown. One new set of drawing and 8 new spinning frames are being added to the equipment of the Odsonia Mills of the Cleveland (Ohio) Worsted Mills Co. to increase the output and new additions are being erected better to accommodate the winding and spooling. Also a new Otis electric elevator is being installed. This plant is running to full capacity under Fred W. Dixon, general superintendent.

*Oregon, Portland. Details of the complete machinery equipment to be installed in the large addition to the Multnomah Mohair Mills, now under construction, have not been worked out. It is understood that all departments will be increased. Mohair and worsted linings are manufactured. The office is in the Couch Bldg., Portland, and the plant at Sellwood.

Pennsylvania, Philadelphia. On account of the inability of the owners of the building in which the Oettel & Pirnay Mfg. Co. is located to provide more space in which to install the additional machinery recently purchased, they will be compelled to move to another location and they are looking for new quarters. The prospects are that the company will secure a mill in which they are the only tenants and where they can enlarge as their business demands. The Oettel & Pirnay Co. makes fine worsted fabrics at 1861 E. Venango St. and were formerly known as the Vervia Worsted Co.

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Mills Starting Up.

Connecticut, Winnipauk. The Norwalk Woolen Mills Co. has been incorporated with capital stock of $100,000 to manufacture woolen goods by Chas P. Bentley of New Milford; Henry P. Price of Norwalk, and Granville Whittlesey of New York. The new corporation will take over and operate the plant of the Norwalk Mills Co., of which Chas. P Bentley was president and treasurer, and as soon as officers are elected and plans outlined the mill will probably be started up. The plant contains 14 sets and 52 looms, which have been operated on overcoatings and cloakings.

*Massachusetts, North Bellingham. Some machinery in the plant of the old Charles River Woolen Co. has been started up by the Bellingham Woolen Co., recently organized by the new owners of the property. In addition to A. E. Bullard and W. W. Ollendorff, president and treasurer, respectively, Herbert T. Murdock, owner of H. T. Murdock & Co., Proctorsville, Vt., and president of the Taft Woolen Co., Caryville, Mass., is interested. Mr. Murdock is vice-president. The superintendent of the new company is Ernest Rhodes. H. P. McKenney & Co. of New York and Boston, are the selling agents.

Pennsylvania, Philadelphia. The Maurice Lobsitz Mfg. Co. has been incorporated with capital stock of $30,000 and has taken over the plant formerly operated by F. W. Walter & Co. at Germantown Ave., above Broad St., on garnetted worsted, silk and camel's hair stock. Maurice Lobsitz heads the new company and states that the present equipment of 12 sets and 3 garnetts will be increased in order that a larger production may be secured.

KNIT.

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New Mills.

Canada, Ontario, Toronto. Wardell-Greene, Ltd., manufacturers of neckwear, shirts and collars, intend to add a knitted neckwear department to their present lines.

Massachusetts, Lowell. G. H. Tilton & Son of Tilton, N. H., have leased for four years the third and fourth floors of the old card clothing building at the corner of Shattuck and Market Sts. and will install machinery for making women's and misses'

high grade cotton hosiery. It is expected that employment will be given to about 150 hands. W. S. Lowe will have charge of the plant. The space leased is being remodeled and painted preparatory to installing the machinery equipment before the end of this month. The main office of G. H. Tilton & Son is at Tilton, N. H., where they also have a dyeing and finishing department for the products of their mills at Laconia, N. H., Columbia, S. C., and Savannah, Ga.

Massachusetts, Winchendon. A knitting plant to make jerseys, sweaters, bathing suits and fancy knit goods has been established here under the style of the Wye Knitting Mills by Thos. E. Wye of Needham, for many years connected with Geo. E. Wye Co. and Wm. H. Wye & Co., and also superintendent in other mills. The new plant is located in what is known as the Nichols factory on Spruce St. and while a detailed report has not been received will employ, it is understood, about 30 hands.

New Jersey, Woodbine. Max Janofsky, formerly with the Woodbine Knitting Co., is equipping a plant in that town for manufacture of sweater coats.

*New York, New York City. A short time ago we gave a report that Sol Fried, 133 Greene St., would establish a plant to manufacture infants' and children's sweater coats under the name of "The Imperial." It has been decided to name the mill the Raven Knitting Mills. A plant is being equipped at 1624 Lexington Ave. by Sol Fried and S. W. Neugroschl and will have 5 knitting machines, 10 sewing machines, 5 toque machines and 4 underwear machines. Manufacturing will be started about July 15, making children's goods only. Frank Nye will be superintendent and S. W. Neugroschl, buyer. Mr. Fried manufactures infants' and children's dresses at 133 Greene St., under the style of "The Imperial."

*Ohio, Columbus. The plan of the Ohio Board of Administration in regard to establishing a textile department in the Ohio Penitentiary in Columbus is to install a complete spinning and knitting mill patterned somewhat after the knitting plant at Sing Sing Prison and the spinning plant at Danemorn Prison, both in New York State, which were visited by the members of the Board of Administration, although it will not perhaps be quite so large as these plants. The Board is totally inexperienced in regard to textile manufacturing but expects to manufacture all the underwear and hosiery used by the inmates of the public institutions of Ohio. It was previously reported that a spinning and weaving plant would be established.

Pennsylvania, Philadelphia. It is reported that William F. Taubel, Inc., manufacturer of hosiery in Riverside, N. J., with several branch plants in this city and other parts of the State, has recently leased a portion of the building at Alleghney Ave. and C St., in which he will install machinery and start up at once.

*Tennessee, Harriman. Details of buildings and machinery for the new Harriman Hosiery Mills are being worked out by Garnett Andrews of Chattanooga, treasurer and manager of the Richmond Hosiery Mills of Rossville, Ga., and of the Chattanooga Knitting Mills at Chattanooga. This company was recently incorporated with capital stock of $100,000 and has organized with J. F. Tarwater and Tom Tarwater, both of Rockwood, Tenn., as president and treasurer, respectively.

Wisconsin, Racine. A. R. Anderson, General Delivery, Kenosha, Wis., has completed arrangements to start a small hosiery mill in Racine, and expects to get started about August 1 on 220 and 240-needle goods.

*Wisconsin, Phillips. Louis Schleife, reported some time ago to be interested in locating a knitting factory here, has begun manufacturing sweater coats for men, women and children. All wool goods are made. Mr. Schleife has been a tailor here for a number of years with his father.

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Enlargements and Improvements.

*Connecticut, Addison. The additions to the plant of the Glastonbury Knitting Co. on which work was started in February are finished and machinery is being moved in as rapidly as possible. The company is said to have received large advance orders.

Massachusetts, Malden. The Yale Knitting Co. will erect a storehouse at a cost of $6,500 on the land in the rear of its plant recently purchased from the city. The new structure will be 102 by 50 ft., 1 story high, with cement floor and flat roof.

New Jersey, Wharton. The Wharton Textile Co. will remove from the present quarters to the top floor of one of the mills of the Singleton Silk Mfg. Co. in Wharton. The Singleton Co. has discontinued its Wharton branch. Cotton and silk seamless hosiery for men and women is manufactured and an increase will be made in the equipment.

*New York, Amsterdam. Plans for the new 4-story and basement mill, 2-story office building and dye house to be erected by the Chalmers Knitting Co. on land recently purchased, have been finished and contractors are estimating on the work. There will be 120,000 square feet of floor space added to the facilities of this company. D. W. Chalmers is president and buyer; John R. Blood, treasurer, and John J. Wilson, superintendent. The new building will be equipped to manufacture their lines of "Porosknit" underwear which they advertise extensively. Electric power equipment will be installed.

*New York, Troy. Work has been started on a new $33,000 reinforced concrete addition to the Aetna Mill of the Wright's Health Underwear Co.

*North Carolina, Durham. The Durham Hosiery Mills are reported as about to install a plant for the mercerizing of cotton yarns for their own use.

Ohio, Cincinnati. The Adler Underwear & Hosiery Mfg. Co. has purchased a lot of land on which to erect an additional factory building.

Pennsylvania, Fritztown. Eight new knitting machines will be installed in the local plant of Wm. G. Leininger. The main plant is at Mohnton. Men's seamless cotton half hose, 144-needle goods, is manufactured.

Pennsylvania, Mount Carmel. The new mill to be erected for Wm. F. Taubel, Inc., large hosiery manufacturers of Riverside, N. J., who operate a branch here, will be a 3 or 4-story building and will be built at the corner of Third and Beach Sts., on a plot of ground, 70 ft. wide and 150 ft. long. Plans are now in preparation and bids for the construction work will be advertised for in about two weeks. Upon completion of the new mill the old one will be offered for sale.

Pennsylvania, Philadelphia. Heller & Heller have removed their knitting plant from 136 N. 3d St. to the top floor of the building at 232 Church St., and increased their equipment to 10 flat knitters, on which they are manufacturing sweater coats by hand and power.

Pennsylvania, Philadelphia. The Belmont Manufacturing Co., 1302 W. Columbia Ave., manufacturers of the "Clover" brand of silk knited neckwear, report being exceedingly busy and have been compelled to increase their knitting equipment to 18 machines in an effort to turn out their orders. They sell direct.

*Pennsylvania, Scranton. At a meeting of stockholders of the Scranton Textile Co. it was voted to increase the capital stock from $400,000 to $500,000 by issuing 7 per cent. cumulative preferred stock as recommended by the directors last May. As noted in May, the increased capital will be used in part to purchase new machinery for manufacturing flat and ribbed goods and to provide additional working capital. A. C. Fuller is treasurer and acting head of the company.

*Pennsylvania, Wernersville. Work has been started on the foundations for the new mill and dye house of the Wernersville Hosiery Mills. The main building will be 38 by 70 ft., 2 stories and basement and will be modern in every respect. The capacity of the plant is to be tripled.

Tennessee, Knoxville. The Knoxville Knitting Mills Co. is installing new knitting equipment. The dye house is also being increased.

Virginia, Danville. An addition is being built to the Danville Knitting Mills which will be 95 by 100 ft., and will be used for a finishing room and stock room. Arrangements have been made for equipment to be installed which will give an increase of about 25 per cent. in the capacity of the plant. Men's, women's and children's hosiery is manufactured.

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SILK.

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Mills Starting Up.

*New Jersey, Paterson. The new mill of the Walser Mfg. Co., Inc., manufacturers of silk braids at Lakeview, is to be equipped ready for manufacturing in November. The location is on Getty Ave. Full particulars have been given previously.

*New Jersey, Paterson. A plant of 26 looms weaving broad silks is being operated in the Slater St. Mills by the Grand Silk Co., recently reported incorporated with capital stock of $20,000. Samuel Neinken is president and Isidor Newman is treasurer, superintendent and buyer. An addition of more looms in the near future is contemplated.

New York, Amsterdam. Contract has been awarded by Fownes Bros. & Co. to Henry C. Grieme Co., local builders, for the construction of a 1-story addition to their silk glove plant on Grove St. Work on the new structure will be started immediately. The addition will be 80 by 80 ft., and will be located in the rear of the present mill. When completed, machinery for winding, warping and weaving purposes will be installed. They manufacture silk gloves, operating 200 sewing machines, dyeing and finishing equipment under the management of W. N. Marsden.

New York, Waverly. Changes and additions are being made at the plant of the Waverly Silk Ribbon Co. and John Turner of Paterson has come here to take charge of the new department. Several looms have been installed.

Pennsylvania, Altoona. The Schwarzenbach Huber Co. will enlarge the local mill and install additional looms. New looms are also to be added to the plant at Juniata. There is an unconfirmed report that the company was looking for a site in this vicinity where a third mill can be located. The main plant is in West Hoboken, N. J.

*Pennsylvania, Catasauqua. Foundations have been put in for the addition to the plant of the Wahneta Silk Co. which will be 140 by 60 ft., 1 story high. The equipment has not been ordered, but will be arranged for at an early date. Broad silks are manufactured on present equipment of 400 looms.

Pennsylvania, Shamokin. A new engine has been installed in the plant of J. H. & C. K. Eagle, Inc., giving double the power capacity.

Pennsylvania, Upland. An additional 20 looms are to be installed in the plant of the Chessaqua Silk Co.

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Mills Starting Up.

*Connecticut, Middletown. The Poidebard Silk Mfg. Co., Jersey City, N. J., is the concern which has taken over the plant of the Woodhouse Silk Co. The Jersey City company has about 250 weavers out on strike for the second time in a few months, and it is due to this trouble that the local plant has been leased for one year with the privilege of purchase.

Pennsylvania, Milton. The silk mill formerly operated by Sydney H. Souter and taken over by the Susquehanna Silk Mills of Sunbury several months ago, will be started up soon, giving employment to about 200 hands. There are 4,000 spindles and 112 broad looms in the plant which will be known in the future as the Susquehanna Silk Mills, Milton branch.

Pennsylvania, Wind Gap. The silk mill formerly operated by the Stewart Silk Co. has been purchased by D. G. Dery of Catasauqua for $7,000, who proposes to start up the plant in about sixty days.

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Mills Shutting Down.

Connecticut, Windsor Locks. On account of lack of business the Windsor Silk Co., spool silks, has shut down and will not be started up again for an indefinite time. A. H. Bottum, the owner, will sell the plant if he can do so to advantage. It is possible that machinery will be installed to do other lines of work, although Mr. Bottum is not very enthusiastic over this project at present, claiming that the outlook does not warrant the outlay.

MISCELLANEOUS.

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*Canada, Ontario, Guelph. Contract has been awarded for construction of factory buildings for the new plant of the Dominion Linen Mfg. Co., Ltd., now located at Bracebridge. It has been noted the plant at Bracebridge will be discontinued when the new plant at Guelph is completed. James Walton, the superintendent, attends to the buying. The officers are at 80 Wellington St., W., Toronto.

*Connecticut, Ansonia. Work on the new 5-story concrete factory building for the Ansonia O. & C. Co. is up to the third story and it is expected the contractors will finish their work about Labor day.

Massachusetts, Gloucester. L. A. Burnham & Co., manufacturers of cotton fish lines, are building an enlargement, which will be 504 ft. long, to be used as a rope walk. It is expected the building will be completed and equipment installed by October 1.

*Massachusetts, Worcester. A. H. Burdick, treasurer of the Standard Woven Fabric Co., states that his company has not made a move in the direction of building a new plant as outlined in the Advance News of last week. The building and equipment of a new plant especially adapted to the manufacture of their lines of multiple woven hose, brake linings, hose jackets, beltings and similar goods, is now being given consideration by the directors, as before very long they will find it absolutely necessary to provide facilities for an enlarged output. No plan has been agreed upon and reports that a site has been selected and that work will be started on a mill before the end of the summer are premature.

Minnesota, St. Paul. A 2-story addition to be 170 by 100 ft. will be built to the plant of the Crex Carpet Co. at an estimated cost of $16,000. The New York office is at 377 Broadway.

*Missouri, St. Louis. The plan of the Lowell Bleachery to establish a branch in St. Louis, which has been under consideration for the past year, has progressed to the extent that the directors have determined to establish an experimental plant in St. Louis to ascertain if they can duplicate the finish obtained at Lowell with Mississippi River water and under the other varying conditions. The building at 3807-17 Laclede Ave., formerly occupied by the Universal Adding Machine Co., which is about two miles from the center of the city, has been rented and will be equipped and put in operation with this idea in view. The plant will contain one set of drying cans, one tenter frame, 3 mangles, kiers, washing machines, nappers, etc. Part of this machinery will be shipped from Lowell and some new machinery has been contracted for. The building secured is said to have over 58,000 square feet on one floor. Sidney Coolidge, Boston, is the treasurer and active head of the Lowell Bleachery.

New Jersey, Paterson. The Wiedmann Silk Dyeing Co. have had plans prepared for an addition to their soap house to cost about $7,500. Construction contract has been awarded to the John W. Ferguson Co.

*New York, Troy. The property at the foot of Glen Ave., formerly occupied by the Wayside Knitting Mill, has been purchased by the Collar City Bleachery, recently organized in Waterford, by C. H. Kavanaugh of Waterford, and J. H. Schaller of Troy, formerly chemist for Cluett, Peabody & Co. It was originally intended to erect a bleachery at Waterford and a suitable site was purchased by Mr. Kavanaugh. A business of bleaching and finishing for collar manufacturers and knitting mills will be carried on.

Pennsylvania, Philadelphia. The Ontario Dyeing Co., D and Ontario Sts., dyers and mercerizers of cotton yarns in the skein and warp, are putting in a new 2,000-pound skein mercerizing machine in order to double the production of the skein mercerizing department.

Pennsylvania, Philadelphia. The three story brick factory building at 1543 Ruan St., Frankford, has recently been sold to the owners of the Frankford Winding Co., who are located in the same building, making a specialty of quilling and coning all kinds of yarns. They were recently mentioned by us as largely increasing their plant.

Pennsylvania, Philadelphia. A local builder is estimating on plans which have been prepared for Brehm & Stehle, dyers of cotton, woolen and mixed yarns, at Trenton Ave. and Allegheny Ave., for a new one-story boiler house which will be 48 by 40 feet.

Pennsylvania, Philadelphia. The No. 2 plant of the General Processing Co., at Trenton Ave., Willard and Westmoreland Sts., is now practically ready for operation. The No. 1 plant of the company is at Amber St. and Allegheny Ave. The company specializes in mercerizing, dyeing, bleaching and winding cotton skein yarns and also dyes combination yarns and hosiery. It is said that the new plant is one of the largest processing plants in the country.

Pennsylvania, Philadelphia. A charter will soon be asked for the Silk Sheen Manufacturing Co. who will start up with a capital of $5,000 which will be later increased. The company will

make a specialty of importing and converting yarns for the embroidery trade and will equip a plant with machinery for this purpose. The address of the company and its officers cannot be secured at this time but can be obtained at a later date.

Pennsylvania, Philadelphia. William Caldwell has installed 11 braiders and one winder at 3013 N. 11th St., on which he will manufacture a line of cotton braids to be used for the purpose of lacing cords.

Pennsylvania, Philadelphia. The Globe Finishing Works, finishers of table covers, damasks, etc., operated by William Foster's Sons at 1543 Ruan St., Frankford, have been shut down and will not be started up again, the concern deciding to retire from business.

Pennsylvania, Philadelphia. The Janero Print Works have recently been started up in this city, having leased the two-story building in the rear of 4040 Germantown Ave., in which they have installed four machines on which they are printing tops on the Vigoureux system and making a specialty of fast colors for the men's wear and dress goods trade. Gustav Prevost is in charge of the plant as superintendent and buyer.

Rhode Island, Pawtucket. The correct name of the new concern which will build a mill in the South Woodlawn section of the city to manufacture woven hose and other woven goods in tubular form is the Tubular Woven Fabric Co. and the officers are Harrison B. Huntoon, president; Chas. S. Smith of the Smith Webbing Co., treasurer, and A. Livingston Kelly, general manager. It has been noted that land has been purchased bordering on Pawtucket Ave., Carver and Main Sts.

*Rhode, Island, Westerly. The George C. Moore Co. will start up the mill formerly occupied by the Westerly Narrow Fabric Co. in addition to continuing the mill at 51 Union St., Worcester, Mass. 120 people will be given employment here when the mill is operated to capacity, which will be within three months, it is expected. The George C. Moore Co. has been incorporated with capital stock of $100,000 and officers elected as follows: John V. Moore, president and superintendent and George C. Moore, treasurer and buyer.

*Tennessee, Chattanooga. The name of the new yarn converting company will be changed from Ridgedale Processing Co., the name under which it was incorporated, to the Standard Processing Co. Officers have not been elected as yet. It has been noted that A. G. Thatcher, president of the Coosa Mfg. Co., Piedmont, Ala., is interested and that plans are being prepared by Lockwood, Greene & Co., Boston, for a building to be erected on a 2-acre site, recently purchased.

*West Virginia, Wheeling. C. W. Pogue of this place has received the contract to build the two additional stories on one of the buildings of J. L. Stifel & Sons and construct a new concrete engine house.

FACTS AND GOSSIP.

Alabama, Birmingham. A meeting of stockholders of the Avondale Mills is to be held at which the location of the new $600,000 cotton mill will be decided and the proposition to issue $250,000 worth of bonds voted on. There is a great deal of interest in the new cotton mill project and several places are in communication with B. B. Comer, who heads the project, relative to a location, including Huntsville, Columbiana and Eufaula. Columbiana has offered to donate a site and Mr. Comer has promised to look over the proposition

*Alabama, Montgomery. No change of any nature is contemplated by the Montgomery Cotton Mills, Inc., recently organized to absorb the Montgomery Cotton Mills. W. B. Tanner continues as secretary and treasurer.

*Colorado, Denver. Plans are being made for the early organization of the Patrons Mfg. Co., which is to be the name of the new woolen mill being agitated by J. H. Bearrup of Albuquerque, N. M., in cooperation with the Chamber of Commerce, the Farmers' Educational & Cooperative Union, the Society of Equity, the Grange, United Mine Workers of America, Cooperative Grain Association and the National Wool Growers' Association. It is planned to have seven departments under one general management to include the following: wool commission and warehousing, wool pulling and scouring, cloth manufacturing, clothing manufacturing, knit goods manufacturing, glove manufacturing, purchasing and sales department. There will be $500,000 in stock issued at $10.00 per share and it is first planned to sell 15,000 shares. The following men have been chosen to serve as temporary officers and directors: J. H. Bearrup, president; Geo. S. Walker, vice-president; E. J. Huling, secretary; Godfrey Schirmer, treasurer. Mr. Schirmer is connected with the German American Trust Co., which is receiving subscriptions for stock. It has been noted that an old cotton mill near Overland Park will be purchased and converted into a woolen mill.

Connecticut, Plainfield. The Lawton Mills Corp. has absorbed the Plainfield Mills Corp. and the capital stock is now $1,500,000. Both concerns had the same officers.

Connecticut, Stafford Springs. Two shifts of weavers are being employed by the Rhode Island Worsted Co. New Looms were recently installed, as noted.

*Connecticut, Vernon. Paul Ackerly has no thought of enlarging his small cotton mill, operated on cotton warps, twines and scrim goods, as a result of his recent purchase of the mill site and water privilege of the old Vernon Woolen Co.

Georgia, Augusta. Reports of enlargements and improvements contemplated by the Riverside Mills, manufacturers of machinery wastes, batting and jute bagging, have been greatly exaggerated. They will make some small improvements, but nothing like changes which call for an expendi-

ture of $200,000, as stated in some reports. Details of changes that are to be made have not been determined as yet.

*Georgia, Glovers. There will be no change in the plant of the Juliette Milling & Glover Mfg. Co. following the recent change in the style of the Juliette Milling Co.

*Georgia, Trion. The sale of the plant of the Trion Mfg. Co. to Captain C. A. Lyerly has been confirmed by the Court, the transfer of the property to be made September 3. Until that date the business will be continued by the trustees. It has been rumored that when the company is reorganized the mill will be under the control of Benjamin Riegel of the Ware Shoals Mfg. Co., Ware Shoals, S. C.

Maine, Alfred. The plant and business of the Alfred Embroidery Co. has been sold to Klauber Bros. of New York for a price reported to be $75,000. It is said the new owners have plants in Switzerland, and will double the capacity of the Alfred mill.

*Maine, Sanford. A circular setting forth particulars of the organization and products of the Bengal Rug Co., reported incorporated two weeks ago with capital stock of $100,000, is being mailed to interested persons. The business will be located in Sanford. It will consist of reproducing the skins of wild animals, featuring the Bengal tiger, also manufacturing a line of automobile rugs. The fabric used in the manufacture of these products is woven by the Sanford Mills with which Samuel E. Creasy, the president of the new concern, was formerly connected. The new concern has secured patents on its process in the United States, Germany, France and Canada and patents pending in Great Britain. In addition to Mr. Creasy the officers are Newell T. Fogg, treasurer, and Hon. Fred J. Allen, clerk. Stock, both common and preferred, will shortly be offered for sale and the products will be ready for marketing before the end of the year, it is expected.

Maine, Skowhegan. At the sale of the plant of the Marston Worsted Co., the property was bid in by Wm. Mitchell, representing the Maine Spinning Co., for $75,000, subject to a mortgage of $15,000 to the Skowhegan Savings Bank and a lease to March 1, 1914, by the Wesserrunsett Worsted Co. The sale was really to further the liquidation of the assets and bring the existence of the Marston Worsted Co. to a close. The plant was taken over some time ago by the Wesserrunsett Worsted Co. which is now operating it to capacity.

Maine, Waterville. What is known as the Chace Mill property, occupied for the past few years by the National Woolen Co., which was controlled by Joseph Noone's Sons Co. of Peterboro, N. H., has been purchased by the Wyandotte Worsted Co., which will take over the plant and probably put it in operation. The firm of Joseph Noone's Sons Co. will not be interested in the plant in the future.

Maryland, Baltimore. As a result of the death of Luther R. D. Schultz, senior partner of Schultz & Bro., rag and jute carpet manufacturers, the business will be incorporated as Schultz & Bro., Inc., with capital stock of $60,000 by Arthur H. Schultz, Arthur H. Schultz, Jr., and Alexander Hardcastle. Thirty looms have been operated at 313 W. German St. on rag, jute, domestic and granite carpets.

*Massachusetts, Fall River. John Thwaites took over the control of the Crystal Spring Dyeing & Bleaching Co. the first of this week. Heretofore bleaching has been specialized in and this line will be continued and extended to embrace all lines of white finishes both in soft and filled goods. Other changes are contemplated by Mr. Thwaites, including the addition of a mercerizing department and dyeing equipment for handling fine cotton goods.

Massachusetts, Holden. Reports circulated in February and March to the effect that Wm. Walker had purchased what is known as the Dawson Mill were incorrect. The property is being offered for sale by H. D. Cleasby or James F. Dorr, Worcester.

Massachusetts, Lowell. It is reported the Hamilton Mfg. Co. contemplates the erection of two additions to be started either this fall or next spring. One addition is to be a 6-story mill, 700 ft. long, which will really be an addition to the new mill recently completed.

Massachusetts, Methuen. A reorganization of the Tremont Worsted Co. has been effected and the name changed to Tremont Worsted Mills. The capital stock is $44,600. John D. Emerson has been elected president; Geo. H. Simonds, treasurer, and Alfred C. Gaunt, clerk and general manager. There will be no changes in the plant.

Massachusetts, Monson. The machinery equipment is being taken out of what is known as the Crescent Worsted Mills, A. A. Langewald, proprietor. This has been a weaving plant of 12 looms and the machinery is being taken out on account of the building being rented to a straw hat firm whose plant was recently destroyed by fire. The machinery is being stored in the Ellis storehouse in South Monson.

Massachusetts, North Adams. A. H. Eastmond & Co., 473 Broome St., New York, selling agents of silk goods, are in communication with G. A. Hastings of the New Industries Committee of the North Adams Merchants' Association regarding a favorable site for a silk mill. The Industry Bureau of the N. Y., N. H. & H. R. R. is interested in finding a site for the Eastmond Co. along its lines.

Massachusetts, Salem. Joseph P. Shortell, chairman of the committee on new industries of the Salem Board of Trade, is in communication with a textile goods manufacturing concern that is seeking a location for a plant. The identity of the concern has not been made public, but it is said that it is located in one of the large centers and desires a new location on account of labor troubles.

Massachusetts, Saundersville. Blanchard Bros. of Uxbridge have received a contract to build a

new dam for the Saunders Cotton Mills across the Blackstone River at the point where the old wooden dam was washed away in the spring. The new dam will be of stone facing backed and reinforced with cement. Work will be started soon.

Massachusetts, Sharon. The A. L. Tribble Co. has been incorporated under the laws of Maine with capital stock of $20,000 to manufacture and sell cordage, twines, cords and clothes lines. Edmund H. Talbot of Sharon is president; Leon V. Walker, Portland, treasurer and clerk, and John J. Bumstead, Boston, is a director.

Massachusetts, Spencer. The Bigwood Woolen Co., recently organized by David Bigwood to take over and operate the Priscilla Woolen Mills, is experiencing some difficulty in getting help. The manufacture of cloakings has been started.

Massachusetts, Taunton. Stockholders of the Old Colony Mfg. Corp. have voted to reduce the capital stock from $100,000 to $15,000, the stockholders surrendering their shares in this proportion, and then to increase the capitalization from $15,000 to $60,000.

*Mississippi, Batesville. H. T. French, formerly superintendent of the Conneross Yarn Mill at Anderson, S. C., has taken charge of the Panola Cordage Co., formerly the Batesville Yarn & Cordage Co., and is manufacturing 3 and 4-ply cones and tubes and cotton rope. The new officers are Wm. H. French, Reedsburg, Wis., president: Wm. Morton French, Batesville, secretary and treasurer, and H. T. French, vice-president, manager and buyer. The plant contains 1,296 spindles at present and we understand they expect to add to this equipment later on.

New Hampshire, East Rochester. At the annual meeting of the stockholders of the Cocheco Woolen Mfg. Co. it was decided not to shut down the mill this year for two weeks' vacation as has been the custom, owing to the number of orders on hand. The old officers were reelected and are S. Parker Bremer, president; Samuel Rindge, treasurer, and F. G. Thomas, agent. Parker, Wilder & Co., Boston, are the selling agents.

New Hampshire, Gossville. The Barmen Webbing Co. is desirous of changing its place of business and is in communication with the boards of trade in Rochester and Dover regarding a new location. Help is scarce in Gossville and they wish to enlarge. A short time ago the Barmen Webbing Co. denied that they contemplated removing to Rochester.

New Jersey, Millville. It is reported that parties connected with a large mill in Paterson, manufacturing silk goods, are endeavoring to arrange with the Millville Development Association to assist them in securing a building in this town into which to remove their plant. The name of the concern cannot be secured at the present time.

New Jersey, Paterson. The American Silk & Cotton Skeins Printing Co. has been organized with capital stock of $15,000 by Richard and Paul Tagliabue and Giovanni Balarinni, all of Paterson. It is announced that a business of printing skein yarns in silk and cotton will be done, also bleaching and dyeing of silk, cotton and other fabrics.

New Jersey, Paterson. The Regal Silk Co., a new concern, has taken space in the Todd Mill, lately vacated by the Belmont Silk Co., and installed 30 broad silk looms. This entirely fills the present space.

*New Jersey, Paterson. In June a report was given of a new silk plant located in the Piaget Mill by Blake Bros. & Gorin. The new concern will begin manufacturing broad silks next week with 10 looms under the style of Gorin Blake Silk Co. The men interested are M. Gorin, S. Blake and V. Blake.

New York, New York City. The International Braiding Co. has been incorporated with capital stock of $35,000 to manufacture braids and similar goods by Mark E. Morris, Abraham Morris and Cecile Morris. The business conducted under the name of the International Braiding Co., 101 Thompson St., will be taken over.

New York, New York City. A corporation has been formed under the name of M. Brodsky & Co., Inc., with capital stock of $30,000 to take over the business of M. Brodsky, manufacturer of thread at 55 Great Jones St. There will be no changes in plant.

*New York, New York. The Freeman-Sumner Co., reported incorporated in June with capital stock of $50,000 (and at that time reported to contemplate establishing a mill in New Jersey) will do a selling business only, handling special lines of threads, yarns and fabrics. V. E. Freeman, vice-president of the Superior Thread & Yarn Co., manufacturers of ramie yarn and also a director and large stock holder of that company, is president and treasurer. Offices have been opened in the Everett Building, 17th St. and 4th Ave.

New York, New York City. The Henry W. Boettger Silk Finishing Co., the Zurich Silk Finishing Co. and Charavay & Bodvin have filed certificates of dissolution. These companies were combined several months ago to form the Silk Finishing Company of America.

New York, New York City. The capital stock of the Linen Thread Co. of New Jersey has been increased from $25,000 to $500,000. There will be no change in the manner of conducting the business of the company.

*New York, Niagara Falls. Within a few days ground will be broken for the erection of the plant of the new Niagara Falls Linen Co.

New York, Seneca Falls. The Sawyer, Regan Company of Dalton, Mass., manufacturers of fancy woolen for men's wear, have purchased some of the machinery equipment of the old Seneca Falls Woolen Co.

Ohio, Ashtabula. At the sale of the property of the Ashtabula Worsted Mills the plant was sold to Hubert Forrest for $50,000. The sale is subject to confirmation by the Court. Mr. Forrest is

an attorney, representing Andrew Dalin, the president, and Ashtabula interests, and it is reported the mill will soon be started up.

Pennsylvania, Bradford. Application has been made for a charter for the Bradford Textile Co. with capital stock of $25,000. The incorporators are S. A. Mundy, W. A. Mundy and F. P. Schoonmaker of Bradford, Albert S. Paton and Thos. Davies of Vineland, N. J. It was noted previously that Mr. Davies and the Messrs. Mundy would establish a plant here for making upholstery and special fabrics. A plant of 10 looms is being established in the Arcade Bldg. and it is understood the machinery is being removed from the plant of Mr. Davies at Vineland.

Pennsylvania, Chester. It is reported the Providence Worsted Mill, 2600 N. 6th St., Philadelphia, have leased the 40 broad looms formerly operated by James Irving & Son, Ltd., in their Irvington Woolen Mills. The Providence Worsted Mills are manufacturers of worsted dress goods, buying the yarn and having the fabric made by commission weavers.

*Pennsylvania, East Brady. A short time ago a report was given under Jersey City of the incorporation of the Penmomic Co. with capital stock of $600.000. R. W. Steele, secretary and manager of the East Brady Woolen Co. of East Brady, is interested, but no statement of the plans can be secured at the present time.

Pennsylvania, Norristown. At a recent meeting of the City Council an ordinance was passed permitting the city to take over the buildings occupied by the Wyoming Spinning Mills at the foot of Swede St. The plant is equipped for the manufacture of cotton yarns and is now occupied by Tonner & Moyer, who took over the spinning equipment which they are running in conjunction with their knitting mill. The purpose of the city in taking over the buildings is to equip an electric light plant.

Pennsylvania, Philadelphia. The equipment of a small plant started up at 2011 E. Arizona St. by a man named Otto, for the manufacture of upholstery fabrics has been sold to the Primrose Tapestry Co., of Frankford, who have removed the looms to their mill and put them in operation again.

Pennsylvania, Philadelphia. Henry M. Schadewald has sent a notice to the trade advising that his five years as trustee for the estate having expired May 19, 1912, the business will be continued by Henry M. Schadewald and Wm. F. Schadewald, under the firm's old name, The Schadewald Mills. They are manufacturers of bed spreads and hair cloth.

Pennsylvania, Philadelphia. The equipment of the Lee Thread Co., located at 416 Line St., Camden, N. J., recently reported by us as having gone out of business, has been taken over and removed to 414 S. Front St., by Chas. J. Webb & Co., who are operating it as an adjunct to their waste department.

Pennsylvania, Philadelphia. A charter has been asked for Thomas Raby, Inc., with Arthur C. Havens, Thomas Raby and Thomas Raby, Jr., as incorporators. Mr. Raby is now engaged in the buying and selling of cotton yarns. The business is to be continued as heretofore under the new title.

Pennsylvania, Reading. The Reading Bleach Works has been incorporated with capital stock of $50,000 by A. B. Lescher, Reading; H. L. Smith, West Reading; D. M. Gruber, Shoemakersville, and T. O. Yarrington of Temple. The new corporation takes over the plant and business of the Reading Bleach Works, 316-20 Bingaman St., Reading, of which Lescher & Smith are the proprietors A business of bleaching cotton piece goods, skein and hosiery yarns is carried on with capacity of 9,000 pounds per day.

Pennsylvania, Shamokin. Chas. E. Knepka, formerly superintendent of the plant of J. H. & C. K. Eagle, Inc., heads a movement to establish a new throwing plant in Shamokin. Efforts are being made to raise the necessary capital.

*Pennsylvania, Slatington. A charter has been granted the Slatington Silk Co., with a capital of $10,000. This refers to the incorporation of the silk throwing business started by Hugh Jones in April.

*Pennsylvania, Williamsport. Details of the reported enlargement contemplated by Thos. Morrison & Sons have not been settled, as the increase is only in contemplation. Sixty looms are operated at present on broad silks.

*Rhode Island, Kenyon. The Kenyon Mills property has been transferred from Frank Bulkeley Smith to Edward A. Stockwell, Providence, one of the incorporators of the new Nottingham & Calais Lace Mills, incorporated last April with capital stock of $150,000. It has been noted previously that Wm. G. Sowter, formerly superintendent of a number of lace mills in this vicinity, is connected with the new concern.

*Rhode Island, Pawtucket. The Providence Braid Co. states that they do not propose to build any enlargement at present on the plot of ground adjoining the plant on Carver St., recently purchased.

Rhode Island, Pawtucket. The Solway Dyeing & Textile Co. has been taken over by the Manhattan Shirt Co. and officers have been elected as follows: Lewis Levi, president; Abraham A. Levi, first vice-president; Jules C. Levi, second vice-president; Jacob Samuels, treasurer; Louis B. Tim, secretary. The board of directors includes in addition to the officers, Robert Dow and William Halliwell of Pawtucket, and Walter Lewisohn and E. C. Westervelt of New York. The Manhattan Shirt Co. was recently incorporated under the laws of New York with capital stock of $8.000.000 and it is reported the new organization contemplates broadening the activity of the plants by additions for the manufacture of collars and underwear.

New Publications

(Any work noticed under this head can be obtained through the office of this journal.)

The Official American Textile Directory for 1912-13; compiled by the Textile World Record; 700 pages; 23 textile maps; Lord & Nagle Company, Boston, New York and Philadelphia, publishers; Office Edition, $3.00; Travelers' Edition, $2.00; Vest Pocket Edition, divided into three sections, viz., New England States and Canada, Middle Atlantic States, Southern and Western States, $1.00 for each section.

The new directory maintains the standard set by previous editions and in many ways is an improvement over any directory of the textile trade previously compiled. The past year has been a period of great changes. Scores of mills have gone out of business, or have been taken over by new companies and between three and four hundred new plants have been started. In addition there have been thousands of changes in mill officers, mill equipment and in the products of old-established mills. These are all accurately given in the mill section of the directory. No other record of many of these new mills and changes is available.

Great strides have been made in compiling trade directories and the lead in the textile field at least was taken by the Textile World Record publications. Their development of textile map features, classified indexes and simple, self-indexing arrangements, features designed to save time and increase the usefulness of directories, mark some of the steps taken. Finally the canvassing of the whole industry by representatives and by mail, a few weeks before the publication of the directory, verifying and amplifying reports, which had come in from time to time, was worked out, bringing the information close to the date of publication and insuring the highest degree of accuracy. To do this successfully extended reporting and news-gathering facilities are necessary. The publishers, being also the publishers of the Textile World Record, have the services of an extensive organization in this work, which cannot be equalled by smaller publishers of books of this character.

Some of the special features of the Official Directory are as follows: A complete directory of textile mills of all classes, with full information, such as name of company or firm, names of officers, character of goods made and machinery equipment.

Copyrighted maps, by which any town referred to in the text can be quickly located on the map. There are twenty-three of these textile maps, which show only the cities and towns where there are textile establishments and junction points. Railroad facilities, distance from other towns, etc., are shown.

A yarn trade index, which gives a classified list of manufacturers of different kinds of yarn who spin for the market; size of yarns spun and the way it is put up are given.

A classified list of cloth manufacturers, giving the classes of goods manufactured in every mill.

A commission and order section, giving classified lists of establishments doing all sorts of dyeing, bleaching, finishing, mercerizing, etc., on order for manufacturers and converters.

A list of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

In this edition indexes have been printed on different colored paper from the mill reports, enabling quicker reference to the section desired. The running headings at the top of pages have been made to show at a glance the contents of each page.

Other features are an alphabetical index, dealers in raw materials, lists of manufacturers of and dealers in cotton and woolen waste, shoddy and flocks, selling agents and dry goods commission houses, machinery and supply section, and a list of the textile associations in the United States and Canada, with officers, addresses, etc.

In preparing the directory simplicity of arrangement has constantly been aimed at. Information, when wanted, is wanted immediately, and with anything but the most simple arrangement in a book of the extent of a complete textile directory, much time is wasted looking for information. This fact is not always given the attention it deserves from publishers.

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Vest Pocket Edition, Official American Textile Directory for 1912-13; Compiled by the Textile World Record; Lord & Nagle Company; Boston, New York, Philadelphia, publishers; 3 sections, $1.00 each.

At the earnest and repeated request of customers sectional vest pocket editions of the Official American Textile Directory have been published; one of the New England States and Canada; one of the Middle Atlantic States; one of the Southern and Western States. Each directory contains the textile maps for the larger states in that book just as they appear in the large editions of the directory. These little books are 6 by 3 inches in size, printed in single column on thin paper like a vest pocket memorandum book, and no thicker. The mill reports are in the same complete form as they appear in the large editions and are arranged in the same ready-for-reference way, all the mills in a city or town being grouped together. In order to make these books as small and light as possible all advertising and other lists have been omitted, only the mill reports appearing. The thinnest of the three sections is about 1/4-inch thick; the thickest is about 3/8-inch thick. The demand for these books comes largely from traveling men, therefore the sale is limited and only a small edition has been printed. The price has been set merely high enough to cover the cost of publication.

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The Blue Book Textile Directory; Davison Publishing Co., 407 Broadway, New York. Price $4.00.

A copy of the office edition of this familiar book has been received and gives evidence of the usual

careful preparation. It includes a directory of textile manufacturers in the United States and Canada; dry goods commission merchants, yarn dealers, cotton, wool, hair and waste dealers, textile machinery, etc. The book is well printed and bound.

Sadtler's Industrial Organic Chemistry; by Samuel P. Sadtler, Ph. D.; 601 pages, 6 by 9 1/2; J. B. Lippincott Co., Philadelphia. Price $5.00.

The fourth edition of Sadtler's Industrial Organic Chemistry has just been issued from the press of the Lippincott Company of Philadelphia, and promises to occupy the same important position in technical chemical literature as the previous editions. The author has labored to bring the bibliography and statistics down to date, at the same time giving careful attention to the sections of the chapters, describing the analytical methods of use in the several industries fuller and more completely than in former editions, giving prominence to those as have been found of the greatest value by specialists in the several industries. This feature of the work will appeal strongly to chemists engaged in textile mill work, where products of most of the industries treated in the volume find application. Closely related to the organic chemical industries, are the textile industries proper, together with those comprehending bleaching, dyeing and textile printing, and which are carefully treated in several chapters. While it is not the author's intention that each of the chapters shall constitute an encyclopaedia of the subject, yet the amount of technical information and data given is sufficiently complete for anyone, whether student, mill operative or manager, to acquaint himself with the subject in which he is most interested, and to study it from the standpoint of raw material, processes of manufacture, products, analytical tests and methods, bibliography and statistics. The subject of direct interest to those engaged in textile manufacturing occupy nearly one-half of the volume, and includes the general characteristics of the textile fibers which precede the sections devoted to the industries based upon the utilization of those fibers, viz.: paper making, gun-cotton, pyroxylene, collodion and celluloid and artificial silk. The section descriptive of the destructive distillation of coal is very complete and fittingly precedes the chapter devoted to the artificial coloring matters. Natural colors are treated in a separate chapter, as are the commercially important methods used at the present time in bleaching, dyeing and textile printing. The volume concludes with an appendix, including the metric system, temperature tables, various specific gravity and alcohol tables, a table of the constants of oils and fats. The index is very complete The volume printed upon good paper from clear, readable type, and illustrated with many cuts and diagrams that leave nothing to be desired, the whole being strongly bound in cloth. We commend this work to practical chemists and all engaged in textile chemical work, and the fact that a fourth edition was called for leads to conviction that its sphere of utility is constantly increasing. L. J. Matos.

Tappet and Dobby Looms, by Thomas Roberts, head of the weaving and designing departments of the Holmfirth and Dewsbury Technical Institutes; 216 pages, 4 1/2 by 7; Emmott & Co., 65 King St., Manchester, Eng. Price $1.50.

This book is in the main a reprint of a series of articles originally published in the Textile Manufacturer of Manchester. The subject is treated under the following heads: Classification of Power Looms, Motions of the Loom, Shedding Mechanism, Dobby Mechanism, Picking Mechanism, Shuttle-Box Mechanism, Let-Off Mechanism, Take-up Mechanism, Auxiliary Mechanism. An interesting feature of the book is the reference to defects in fabrics caused during the weaving process, being based on the practical experience of the author. The volume is well illustrated and makes a very useful handbook for weavers.

Cotton, by R. J. Peake; 24 pages, 4 1/2 by 7; Sir Isaac Pitman & Sons, London and New York. Price 75 cents.

This volume belongs to a series dealing with Common Commodities of Commerce, published by the same firm. It will be found of special value to the general reader, although the mill man will undoubtedly find much in it to interest and instruct. The following abstract of the table of contents show the manner in which the subject is treated: Cotton Growing, The Spinning Mill, Winding, Warping and Weaving, Bleaching, Printing and Dyeing, Market Distribution of Yarn and Cloth, Trade Unions and Masters' Associations, Masters' Organizations. The work is freely illustrated.

Artificial Silk (Die Kunstseide), by Dr. Franz Becker; 306 pages, 6 1/2 by 9 1/2; Wilhelm Knapp, Halle, Germany. Price $6.50.

The author has given a systematic account of the various processes of manufacturing artificial silk, treating the subject under the following heads: General Information, Artificial Silk Out of Cellulose, The Nitro-Cellulose Process, The Chardonnet and Lehner Processes, The Cooper Ammonicial Process, The Viscose Properties of Cellulose Silk, The Dyeing of Artificial Silk, The Uses of Artificial Silk, Artificial Silk from Animal Materials, Commercial and Statistical, Patents. The volume is illustrated, the text being in German.

Technology, Weave Construction, Analysis and Calculation for Jacquard Weaving (Technologie Bindungslehre, Dekomposition Kalkulation der Jacquard-Weberei); by Prof. Franz Donat, 121 pages, 36 plates, 8 by 11 1/2; A. Hartleben, Vienna, Germany. Price $5.

The text in this work consists of a condensed account of the subjects named in the title and treated under the following heads: Jacquard Looms, Mounting of the Looms, Weaving Constructions, Jacquard Designs, Drafting, Character of the Patterns, Transfer of Designs, Shading, Weave Construction, Analysis and Calculation. The illustrations are on 36 plates and include

samples of cloth, drawings of the jacquard loom, color designs and colored weave drafts. Like nearly all of the previous works on weaving by the same author, this volume is of value to those who are not familiar with the German text, owing to the many excellent illustrations.

Silk, by Luther Hooper; 126 pages, 4 1/2 by 7; Sir Isaac Pitman & Sons, London and New York. Price 75 cents.

This is one of Pitman's Common Commodities of Commerce series and deals with both the production and manufacture of silk. It is of a rather more technical character than its companion volumes dealing with wool and cotton. It is freely illustrated, the contents being as follows: The Value of Silk, The Silkworm, Varieties of Silk-Producing Moths, History of Silk and Sericulture, The Practice of Sericulture, Reeling from the Cocoons, Silk Throwing and Winding, Silk Dyeing, Varieties of Silk Thread, Ancient Silk Weaving, The Ornamental Silk Webs of China, The Simple and Compound Draw-Loom for Silk Weaving, Silk Damask Weaving, The Introduction of Silk Weaving into Europe, English Silk Weaving to About 1800, Modern Silk Weaving.

The Human Factor in Works Management, by James Hartness, M. E., president of the Jones & Lamson Machine Co.; 159 pages, 5 by 7 1/2; McGraw-Hill Book Co., 239 West 39th St., New York. Price $1.50.

This, the latest addition to the already voluminous literature on scientific management, is written by the manager of a large machine manufacturing company who is able to discuss the subject from a practical standpoint. The subject is treated under the following heads: The Value of Habit, The Inertia of Habit, The Different Views of Industrial Organization, Increasing the Assimilating Capacity, Some Non-Technical Phases of Machine Design, Machine Building for Profit.

The Finishing of Silk, Half Silk and Velvet Fabrics (Die Appretur der Seiden, Halbseiden und Samtgewebe); by Walther Knepscher; 39 pages, 5 1/2 by 8 1/2; Dr. Max Jaenecke, Leipzig, Germany. Price $1.

This volume contains a condensed account of the various processes of finishing silk, half silk and velvet goods. It contains a number of illustrations of modern machines used in this branch of the silk industry, the subject being considered under the following heads: Finishing Materials, Preparation of Finishing Solutions, Finishing Silk and Half Silk Goods, Finishing Pile Fabrics, Finishing Silk and Velvet Goods, Special Process of Finishing. The text is in German.

Mercerizing and Finishing (Mercerisation und Appretur); by Paul Gardner; 190 pages, 5 1/2 by 8; Julius Springer, Berlin, Germany. Price $3.50.

The second edition of this work has been recently published and contains much new material, the object of the author being to bring the volume up to date and keep it abreast of the progress in this branch of the cotton industry. The subject is treated under the following heads: Early Patents, Later Patents, The Effect of the Caustic Solution on the Physical and Chemical Structure of Cotton, The Practice and Mercerizing, Reclaiming the Alkali from Waste Mercerizing Liquors, The Finishing of Mercerized Fabrics. The work is illustrated, the text being in German.

Spinning (Die Spinnerei), by Prof. M. Lehmann, director of the Prussian Textile School at Crefeld; 107 pages, 4 1/2 by 7; B. G. Teubner, Leipzig, Germany. Price 75 cents.

This is a description of the spinning of cotton, linen, ramie, wool, silk, mineral fibers and wastes, and is intended mainly for the non-technical reader. The subject is handled under the following heads: Rate Material, Statistics, Cotton Spinning, Woolen and Worsted Spinning, The Spinning of Flax, Hemp, Jute and Ramie, The Production of the Silk Thread, The Preparation and Spinning of Schappe Silk. The work is freely illustrated and the text is in German.

BUSINESS LITERATURE

Green's Economizer. The Green Fuel Economizer Co., Matteawan, New York.

A 104-page catalogue containing an account of the construction and operation of the Green economizer. It gives the results obtained with this economizer in a large number of steam plants throughout the country. The catalogue is freely illustrated and a copy should be in the possession of everyone charged with the management of steam boilers.

Special Textile Machinery; Joseph Stubbs, Ltd., Manchester, Eng.; The William Firth Co., 200 Devonshire St., Boston, sole American agents.

This catalogue consists of twenty-six illustrated sheets each describing one of the many textile machines built by Joseph Stubbs, Ltd., whose American agents are The William Firth Co. Their products include top, bobbin and hank winders, yarn clearers, ring doublers, cotton, silk and worsted gassing frames, apparatus for the ventilation of gassing rooms, yarn reels, yarn preparing machines, hank polishing machines and yarn bundling presses.

Ventilating and Exhaust Fans, Machinery Specialties; B. F. Perkins & Son, Inc., Holyoke, Mass.

This is a very attractive catalogue of 120 pages, printed in two colors. Fine half tone cuts, with good, clear printing of descriptive matter and price list, make it easy for buyers to select and specify the things needed in the comprehensive line manufactured by this company. This line in-

cludes ventilating and exhaust fans, calender rolls, Mullen's tester, cutting machines, power transmission machinery, and other specialties needed in textile mills.

Industrial Buildings of Concrete, by Lockwood, Greene & Co., architects and engineers for industrial plants, 93 Federal St., Boston.

This 32-page booklet illustrates the more important concrete buildings designed by Lockwood, Greene & Co., showing various treatments. Anyone interested in concrete buildings should send for this booklet to the company's Boston office, as it has many points of interest.

Efficiency Society, 29 West 39th St., New York.

A year ago a few men in New York interested in the question of efficiency started a movement to organize an association having for its object the encouragement of increased efficiency in all branches of human endeavor. On March 18, 1912, when the first public meeting of the association was called, the Efficiency Society had a thousand members. A booklet has recently been published giving a sketch of the development and objects of the organization. The members of the board of directors include James G. Cannon, of the Fourth National Bank, New York; W. W. Freeman, of the Edison Electric Illuminating Co.; Melville W. Mix, of the Dodge Mfg. Co., Mishawaka, Ind., and Henry R. Towne, of the Yale & Towne Mfg. Co., 9 Murray St., New York. The officers are: James G. Cannon, president; Henry R. Towne, first vice-president; Melville W. Mix, second vice-president; Theo. Hetzler, treasurer, and H. F. J. Porter, secretary. The offices of the society are in the Engineering Bldg., 29 West 39th St., New York.

Industrial Notes

OFFICERS OF THE SOUTHERN TEXTILE ASSOCIATION

Following is a list of the officers of the Southern Textile Association elected at the meeting on June 29th and which was received too late for publication in our July issue:

President T. M. McEntyre, Supt. Loray Mill, Gastonia, N. C.

Vice Presidents, Z. H. Mangum, Supt. Minneola Mill, Gibsonville, N. C.; T. B. Wallace, Supt. Duncan Mill, Greenville, S. C.; J. H. Quinlan, Supt. Cedartown Cotton and Export Co., Cedartown, Ga.; I. B. Covington, Supt. Mt. Holly Cotton Mills, Mt. Holly, N. C.

Secretary, G. S. Escott, President The Mill News, Charlotte.

Treasurer, Dacid Clark, Editor Southern Textile Bulletin.

Board of Governors (new members): A. B. Carter, Athens, Ga.; Thos. H. Webb, Duke, N. C.; A. H. Cottingham, Union, S. C.; James A. Bangle, Greensboro, N. C.

Chairman Board of Governors: W. H. Hardeman, Newberry, S. C.

WILLIAM H. PORTER

The friends and customers of the firm of T. J. Porter & Sons, cotton and linen yarn importers, 119 So. 4th St., Philadelphia, will be glad to note the return of William H. Porter from his trip abroad, much improved in health. Mr. Porter, on account of a slight illness, took a trip to England and Ireland with the view, not only of regaining his health, but also of visiting the mills which his firm represents in this country. They are the United States representatives of Robert Marsland & Co., Ltd., Manchester, England, spinners of high grade cotton yarns, and also Lindsay Thompson & Co., Ltd., Belfast, Ireland, flax spinners and linen thread manufacturers.

NEW QUARTERS

The Hess-Bright Manufacturing Co. has transferred its office to its new factory at Front St. and Erie Ave., Philadelphia, Pa. Removal of the manufacturing department of the business will be performed progressively during the month of July.

The old quarters at 21st St. and Fairmount Ave. have for the past two years been inadequate for the rapidly growing business of the company, and the new site, which covers some 13 acres, affords ample room for much-needed expansion. The factory buildings are one story high and embody the most advanced ideas on modern factory arrangement and construction.

TERRY TURBINES FOR TEXTILE MILLS

The Terry Steam Turbine Co. report the following recent sales to the textile industry: 500 g. p. m. Terry turbine driven boiler feed pump for Arnold Print Works, North Adams, Mass.; 700 g. p. m., 500 g. p. m. and 250 g. p. m. Terry turbine driven boiler feed pumps for Pacific Mills, Lawrence, Mass., repeat orders; 200 g. p. m. Terry turbine-driven boiler feed pump for Columbia Mills, Inc.

SPRINKLERS AND INSURANCE RATES

At a recent banquet of the Minneapolis Association of Credit Men, Walter C. Leach, president of the Northeastern Fire & Marine Insurance Co., referring to the $2,500,000 fire loss suffered in 1910 by the City of Minneapolis, came out strongly in favor of automatic sprinklers. He stated that insurance companies were making more money on the 25 cent rate with automatic sprinkler protection than on the $2.00 rate without sprinklers. It is perfectly obvious that the difference between these two figures would pay for the sprinklers equipment very quickly.

EXAMPLES OF BELT AND ROPE TREATMENT IN TEXTILE MILLS

The belt man in textile mills who sees to it that his belts are constantly in good repair and free from slipping troubles is a good man to keep. A few examples are given where Cling-Surface treatment has eliminated belt traubles to a surprising degree in some textile mills. Fig. 1 shows a unique pulley and belt arrangement in the engine room of the Kutz Knitting Mills, Bechtelsville, Pa., where, as shown by dotted lines in the line sketch, the belt was formerly run tight and enclosed a wooden beam. Tightness, however, is always undesirable because of the power loss it occasions in the journals, and the small arcs of

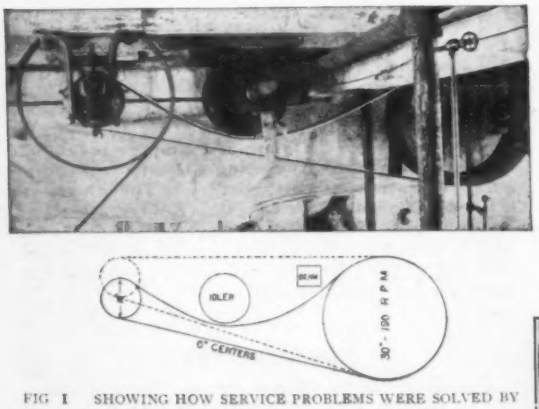

FIG. 1 SHOWING HOW SERVICE PROBLEMS WERE SOLVED BY APPLYING CLING-SURFACE, SHIFTING A COUNTER-SHAFT, AND LENGTHENING THE BELT

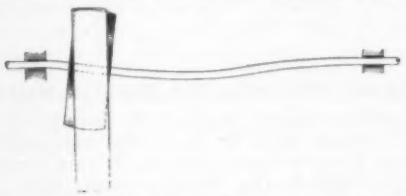

FIG. 2. HOW EXCESSIVE TENSIONS CAUSE GREAT FRICTION LOSS AND PREMATURE WEAR IN THE JOURNALS

contact as shown cannot give the desired belt gripping surface. Where belts are excessively tight and where only one hanger is used to give rigidity to a pulley, the enormous tentions are often sufficient to deflect the shafting as shown in Fig. 2. To reduce tensions and increase the contact arcs, Cling-Surface treatment was used in the Kutz Mills. The belt was given proper pliability and pulley gripping qualities and when conditions were right the change was made in pulley and belt arrangement, as shown in the photograph. The belt now runs under the beam. The idler shown is there only to prevent the belt from hitting the girder when starting. As soon as speed is up, it clears the idler by an inch and pulls full load easily without slip.

Fig. 3 shows another typical example on a main drive belt in J. C. Roulette & Sons' Mills, Hagerstown, Md., where the Cling-Surface method was used to preserve the belts, ease the tensions, and increase both arcs of contact. Running slack, as shown, the 12-inch belt carries 70 h. p. from a 9-foot driving pulley which runs at 94 r. p. m. to a 36-inch driven pulley on 17-foot centers. Before beginning the treatment much trouble was experienced because of slipping and burning of the belt, despite tightening. To make such a belt run smoothly, evenly, efficiently, as slack as shown, and without slipping, was a feat that appeared to some to be little short of impossible.

Cling-Surface treatment makes belts pull without making them sticky. This pulling property results from pliability given the belts by the Cling-Surface penetrating the belting, surrounding and virtually lubricating every fiber, thus enabling every square inch of belt surface to come in free contact with and grip the pulley, without forcing the grip as in tight belts. Of course, the increased wrap in treated belts gives the latter another decided advantage.

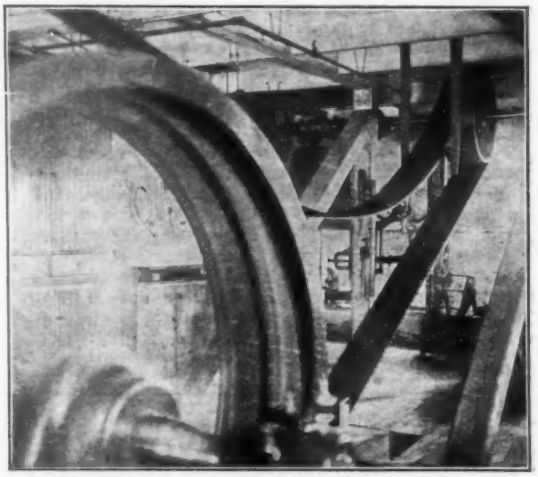

FIG. 3 A NICE SLACK BELT IN A TEXTILE MILL THAT PULLS FULL LOAD WITHOUT SLIP

Cling-Surface treatment has been found to be very beneficial in reducing troubles from the generation of static electricity in textile mills. Ordinary leather belts are made immune to damp or steamy surroundings by Cling-Surface treatment or to the actual submerging of belts in water by proper application of this treatment. This has been proved in instances where for several days floods buried belts treated in this manner. Except at the edges of the seam a cemented belt is also rendered waterproof, although it will not withstand prolonged submerging as successfully as will a riveted belt, it resists dampness and steam.

An interesting experience was recently related in Power by the chief engineer of a large Southern cotton mill, which emphasizes the need of waterproofed belts in humid or changeable climate. After three weeks of rainy weather the belts in that mill, which were ordinarily run tight, got to

sagging. The manager, being of the old school, thought that slack belts and success couldn't go hand in hand and so directed that all belts be taken up. The engineer protested, suggesting that it would be best to take up the belts after the rainy period had ceased. The manager, however, had his way and 6 to 10 inches was cut off every belt in the mill. "When I started up," the engineer writes, "the fun began. The engine had run but a short time when both main bearings went hot. The manager would not have the engine stopped, but turned water on the bearings and flooded them with oil. He said that he never had to shut down for a hot bearing and he was not going to have me begin. It was carelessness on my part in not seeing that they were properly oiled before starting up, or they would not run hot so quickly, that it was no fault of the belt.

"He left the engine room to go to his office, and had only been gone a short time when he came running back, yelling at the top of his voice to stop the engine. I had the throttle only half closed when the engine stopped with a groan. The boxes on the main driving shaft had melted out and hot metal was scatetred over the floor: the main bearing on the engine stuck fast, one 10-inch belt broke and several others ran off the pulleys: and all of the boxes on the main line shaft, excepting one, had burned out the babbitt. The owner of the mill chanced to pay us a visit a few minutes after the engine stopped and promptly fired the manager and hired a practical man in his place. It took three and a half days' work in rebabbitting the boxes and letting out and splicing the belts before the mill could be run again."

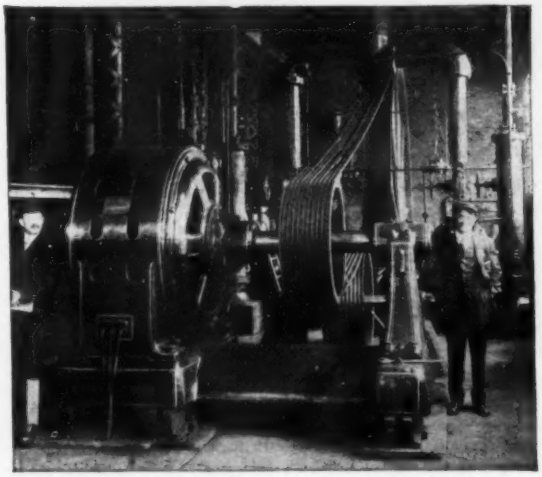

FIG 4. A ROPE DRIVE IN WHICH THE STRANDS WERE ADVANTAGEOUSLY LUBRICATED WITH CLING-SURFACE

It is just such experiences as those that Cling-Surface eliminates, because moisture does not affect a belt after it is waterproofed.

Cotton, camel's hair, Gandy and even rubber belting have been effectively treated by Cling-Surface in numerous installations. Ropes, also, which are very frequently used in textile mills are bettered by this treatment. Slipping is stopped, weights for producing rope tensions are usually lightened, the transmission efficiency is increased because all rope fibers are properly lubricated and as a further result of this fiber lubrication, internal wear is decreased and the life of the whole rope lengthened. The 10-rope drive shown in Fig. 4 transmits 200 h. p. Cling-Surface treatment permitted a 25 per cent. reduction in weights on the tension carriage and made slip a thing of the past. Fig. 5 shows another installation in the same plant where driving efficiency was increased by this treatment: 100 h. p. is transmitted without slip through the 10-rope drive, and after 33 1/3 per cent. of the tension weights were taken off.

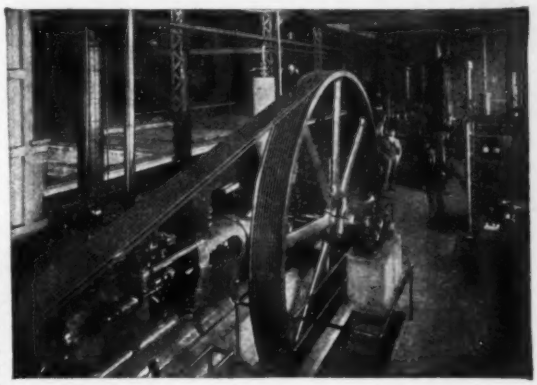

FIG. 5. ANOTHER TREATED ROPE DRIVE. REDUCED TENSION WEIGHTS, INCREASED TRANSMISSION EFFICIENCY AND NO SLIP ARE SOME OF THE BENEFITS DERIVED

THE UNIVERSAL WINDINC CO.'S OUTING

About 400 employes of the Universal Winding Co. had their outing at Rocky Point on August 2d. There was a long list of athletic events and a ball game. Special cars carried a portion of the party from Providence, others going by trolley, motor boats and other conveyances. There was a quarter mile run, fat man's race, shot put, mile run, tug of war, potato race, 200 yard dash, relay race and 100 yard dash. Dinner was served at 12.30 o'clock. In addition to the employes of the company there were a number of invited guests present to enjoy the sport. Officials from the Boston office of the Universal Winding Company, including Treasurer R. A. Lesson and F. A. Bishop, were on hand together with agents H. H. Lowe of New York, C. W. Pierce of Providence, Frank J. Quinn of Philadelphia, E. A. Warren of Fall River. Other guests were H. R. Lowe and George H. Thomas of the Thomas & Lowe Machinery Company, George Thompson of the New England Butt Company, Howard Kenney of the Wescott, Slade & Balcom Company, L. Billington of the Union Hardware Company and Fred and Albert Hallworth of the Providence Enamel Company.

Factory Manager Arthur L. Harvey and Superintendent William A. Booth took an active part in the enjoyments of the day and assisted in making the event a memorable one. The prizes included clocks, cuff links, dress suit cases, loving cups, scarf pins and sweaters.

The day will long be remembered with pleasure by all who were present. The expansion of the business of the Universal Winding Company brings together a larger number at each succeeding outing and the interest and good will of the employes towards the company also increases with longer service.

MOTOR TRUCKS FOR FACTORY USE

The exact advantages of the motor truck over horses in any particular case is not a question that can be easily determined from the experience of others. This is so, for the reason that no two business organizations have to meet precisely, or even approximately the same haulage problems. Facilities for loading, length of hauls, number of stops, daily tonnage carried, nature of the streets and highways traversed, climatic conditions, all these are questions which bear directly on the proposition. And there are others. Firms engaged in certain trades find that investigation of motor haulage in their own line leaves them stranded in further doubt. They learn that where certain conditions may be materially like theirs, that there are special elements in each case to which it is difficult to find a parallel. In the files of the Kissel Motor Car Company are experience letters from users of KisselKar trucks in seventy-five or more lines of trade. That each individual experience is different is the most marked impression that these letters leave.

Statistics, comparative data, mazes of figures that illustrate when analyzed nothing more than individual cases, have been published in truck discussions and it is not surprising that one truck prospect writes to the Kissel Company: "Tell me how your truck has met haulage questions that might arise in any business. That is the point I want to settle in my mind first." There are several such cases in the Kissel files, knowledge of which is valuable as throwing light upon the power, performance, endurance and reliability of trucks as compared with horses.

The experience of Alexander H. Revell & Co., of Chicago during the severe blizzard of Feb. 26, 1912, a day when horses were unable to travel to any great extent, was merely the experience that would have come to any owner of as good a truck service. Revell & Co. used four KisselKar trucks on that day, covering a total of 124 miles and making 95 deliveries.

Last March during a week of incessant rain, with roads in such condition as to almost preclude horse haulage, the New Jersey Flour Co.,

of Passaic, N. J., operated a four-ton KisselKar truck 290 miles, all in country traffic, delivering 984 barrels of flour. This concern writes: "We consider this a greater amount of business delivered than could be possible with four teams of horses."

The Weideman Brewing Co., of New Haven, Conn., report a similar experience, mentioning specifically a trip from New Haven to Bridgeport, a distance of thirty-six miles, when the mud was so deep that the truck sank nearly to the sprockets, yet went through without any mechanical trouble whatever. The truck carried a full four-ton load.

The Plumb & Nelson Company of Manitowoc, Wis., states that they were able through the use of their motor truck to fill a big emergency telegraph order, which had to make a certain train, whereas with horses there would have been insufficient time.

The Kansas City Transfer Co., of Kansas City,

Mo., hitched a three-ton KisselKar truck to a trailer on which was a 37,000 pound boiler, and a haul of a mile and a quarter of this huge bulk was made in forty minutes. Sometime previously it had taken twelve horses ten hours to do this identical thing.

These are merely straws indicating the duty that can be expected of a motor truck if required. One owner, engaged in a business that does not involve much delivering, writes that he is able to make a profit by undertaking the drayage of neighboring merchants similarly situated. That motor trucks, under nearly all normal circumstances, are less expensive to operate and care for than horses, is a fact made stronger by investigating the exceptional instances where they do not seem to be so. In such cases it is invariably found that extrinsic conditions are at fault. The study of the motor truck from the standpoint of economy or actual money saving should be supplemented by a thorough consideration of its value from the standpoint of service and advertising. As to service—which means more than anything else, quick and prompt deliveries—A. E. Holmes, superintendent of the Revell store in Chicago, says: "In our business we must be up-to-date, and our customers demand the best we can give them, both in goods and in service. Even if motor trucks were more expensive, which they are not, we would never go back to horses."

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CHANGES IN THE ENGLISH WOOLEN INDUSTRY

From Consul Benjamin F. Chase, Leeds

The textile trade of Leeds district suffered from the coal strike of March. Its settlement did not wholly relieve the situation, as the ready-made clothing output is mostly for home consumption, and those out of work for so long had to use their wages for necessities and paying accumulated bills. The situation was somewhat relieved by orders for cloth from abroad, light-weight cloth for South American and Continental markets aiding a speedier recovery. Early in May came an increased demand for fancy tweeds for the special-measure trade of ready-made clothing shops. Business has improved all around, with mills busy for both home and export purposes. One complaint is the restriction in immigration as a result of the aliens act, which has reduced the available supply of workers, while improving the conditions of those remaining. Less than ten years ago hours of work in the clothing trade were from 7 a. m. to 9 p. m., and the daily wages 80 cents. The hours are now from 8 to 6, and workers now demand $1.50 or more.

Conditions in the heavy-woolen or shoddy district are very fully covered by a report from a Batley correspondent to the Yorkshire Post:

"The leading manufacturers are so busy that in one branch there is a cloth famine. 'Naps,' once a popular style of cloth, have been out of vogue so long that many people will be surprised to hear they are now in such request that manufacturers cannot keep pace with the demand. Hundreds of pieces of mantle cloths in bright colors are being made and 'napped,' but the output is unequal to the demand. Twenty or thirty years ago, when naps were in great favor, napping machines were in more general use and some of the machines discarded in recent years to make room for other equipment are now being replaced, but only a few firms are yet in a position to turn out any great quantity of nap cloths. Merchants and costumers are wondering why manufacturers do not increase the number of their napping machines, but the reason is that mill owners are so busy in other classes of goods that most of their looms are occupied on what may be termed standard ranges. One or two notable firms which have always retained most of their napping machines, and which have recently increased the number, are running night and day in an effort to keep pace with orders, but unless there is an unexpected slump in the general demand for other products the supply of naps, for ladies' wear especially, will fall considerably short of next year's winter requirements.

"This is an evidence of the change that has taken place in the character of the trade of the heavy woolen district. At one time the local output was practically confined to reversibles, pilots, devons, beavers, meltons, and heavy naps in more or less plain colors, principally blacks, blues and browns. Now there is an enormous production also of serges, vicunas, tweeds, mantle cloths, and worsteds. During the past winter the ladies of England, Ireland, Scotland and Wales, their cousins in the colonies and their sisters on the Continent, have been wearing long coats made of blanket cloths produced on the looms of this district. These 'comfy' looking coats are given a mossy finish by being passed through wire carded rollers, which, lightly set, raise the face of the cloth and give it a woolly or 'mossy' appearance. A similar make of cloth 'napped' instead of 'mossed' bids fair to become very fashionable next winter. Side by side with these one sees ladies' costumes and men's suits of imitation 'Donegal' tweeds. The layman is perplexed as he examines these local 'Donegals'—he cannot understand how the varied colored 'naps' are introduced into cloth woven on fast-running looms. At first the introduction of the 'naps' was attended with some difficulty, but the fact that 'Donegals' are now being turned out in huge quantities is the best evidence that the heavy-woolen district manufacturers have overcome the obstacles with which they are faced. The consumption of these goods is still growing at a rapid rate.

"While the production of army cloths, policemen's uniform cloths, and heavy woolens of other types are still pouring out of the factories of this district, steady progress is also being made in the manufacture of worsteds, and to the firms engaged in this class of trade I should like to commend the enterprise of the Leeds University authorities in installing, at a cost of $25,000, suitable equipment for technological instruction in the principles and theory of the manufacture of worsted yarns on the Continental system. If cheaper worsted yarn can be made in this country, the heavy-woolen district must stand to gain by it. Certain ranges of low-class goods can be improved in quality, and the men who have succeeded in bringing the use

of shoddy to such a fine art in the making of woolen cloth may naturally be expected to make the best use of a cheaper raw material in the manufacture of worsteds. Cheap worsteds are already obtainable, and one sees no reason why they should not become more popular, if only as a change from tweeds.

"When that time comes the heavy-woolen district will become as famous for worsted cloths for the 'million' as it is now for woolens. In the first four months of this year worsted yarn valued at $8,501,775, and woolen yarn worth $882,812, were exported from Great Britain, but we imported worsted and woolen yarn of the value of $4,991,559. In weight nearly 10,000,000 pounds of yarn came into the United Kingdom, and the greater part of it was made by processes which can now be studied in the spinning extension of the Leeds University.

"The Continental system of yarn spinning is adapted to the production of yarns usable in the manufacture of worsted and union fabrics differing in quality and character from the classes of woven and knitted fabrics obtainable by employing yarns spun on the English system. The mechanism is constructed specially for the treatment of short-fiber wools, and provides a routine of work affording increased facilities in preparing worsted yarns composed of various materials, such as, for example, wool and cotton. Only a small percentage of oil is necessary in the initial operations, and as it is removed after combing the dyeing of bright and clear colors—so important in the several branches of the worsted industry—is by this method rendered more satisfactory. A special melanging machine is also provided for facilitating the mixing of the fibers of the wool and cotton, ordinary English worsted machinery not being adapted for mixing the cotton and wool together in the fiber. A few English firms, by the adoption of Continental methods, have for some years made merino yarns and are doing a big trade in them."

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TEXTILE FINISHING MACHINERY CO.'S OUTING

The annual field day and outing of the mechanical departments of the Textile Finishing Machinery Co. was held at the Warwick Club, Narragansett Bay, August 3rd. The experience of last year has made the committee expert entertainers and the program was a most interesting one.

A baseball game of seven innings between factory A and factory B was the principal feature, although the field sports, of which there were fifteen events, brought keen competition and aroused much enthusiasm.

A substantial luncheon and famous Rhode Island clam bake put the spectators in a pleasant state of mind.

Prizes for the different events were presented by the officers and members of the company.

The committee of arrangements were: H. W. Honeyman, Wm. Proffitt, W. Wardell, W. A. Stelling, Charles Read and T. Kelly.

Committee on Games: Factory A, W. A. Richardson and A. McPhillips; Factory B, W. Cook and J. Hawkins.

ANNUAL OUTING

The employes of the Charles Bond Company held their annual outing on Saturday, July 6th, on the Athletic Field at Tabor, Pa. There was a large attendance, consisting of the families of the employes. The events were full of interest, centering mostly in friendly contests between the members of the leather belt factory and machine shop vs. the salesmen and office force. There were 100 yard and 50 yard dashes, hopping race, tug of war, heavy weight race and a baseball game. In the tug of war, the salesmen and office force were too much for the factorymen, while the condition was reversed in the baseball game. After the sports, the "eats committee" spread before the assemblage a novelty lunch, which was quite original and was highly enjoyed.

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$1,800,000 PER YEAR SAVED

Over nine million tons of coal per year are burned in the Murphy automatic smokeless furnaces. Figuring the cost of this coal on the average at two dollars per ton gives a total of $18,000,000 per year for coal burned in these furnaces, and the Murphy Iron Works of Detroit which builds these furnaces states that the saving is $1,800,000 per year over ordinary methods, besides the great advantage of cleanliness and freedom from smoke.

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HYGROSSO ANNOUNCEMENT

The Briggs-Shaffner Co., Winston-Salem, N. C., announce that they have acquired the sole right to the manufacture and sale of Hygrosso humidifiers under the John W. Fries Patents. They also announce that John E. Schott, of Charlotte, N. C., who has been with Hygrosso since its introduction, will continue with the company in the same capacity as before. The Briggs-Shaffner Co. do all sorts of machine and foundry work and their equipment is complete for cotton mill machinery repair work. The Hygrosso will be built in their own shops and all orders will receive special attention.

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CONSERVATION

According to Ira C. Hoagland, editor of Insurance Engineering, "The automatic sprinkler is the greatest single factor of conservation in the insurance world of today. There are certain classes of manufacturies that could not endure without the protection which this device affords. This protection should be required by law in all buildings of combustible and otherwise unsafe construction and arrangement, where people congregate, either by compulsion or of their own volition."

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Pennsylvania, Danville. The Riverdale & Dan River Cotton Mills will soon install a new electrical generating outfit in their power plant consisting of a 1250 k. w., 600 volt turbine unit, a 25 k. w. 2-unit motor-generator set and switchboard. The apparatus will be supplied and installed by the General Electric Company.

MOVING TO LARGER OFFICES

Lockwood, Greene & Co., architects and engineers for industrial plants, 93 Federal St., Boston, will occupy the seventh, eighth and ninth floors of the First National Bank Bldg., 60 Federal St., Boston, as soon as the building is completed. The new quarters have been made necessary by their increased volume of business and the need of more commodious arrangement of departments.

INCREASING CAPACITY

The J. O. Draper Co., Pawtucket, R. I., manufacturers of soaps for the textile industry, have found it necessary to increase their capacity by adding new machinery and a new boiler in order to keep up with the demand for their product.

AN ENGLISH OCTOGENARIAN AT THE LOOM

Mr. William Parrott, despite his 82 years, is still regularly employed in the weaving shed at Messrs. Brierley and Sons, Holland-Street Mill, Kochdale. Born at Stockport on July 15, 1830, Mr. Parrott came of a family of weavers. His mother and father worked on hand looms until the power loom was introduced, and his uncle was also a hand-loom weaver.

Entering the weaving shed at the early age of seven years, Mr. Parrott earned from 2s. 4d. to 2s. 8d. per week as a tenter. "There were no three-loom weavers in those days," he observed in the course of an interview. "All four-loom weavers with a tenter. We started at six o'clock in the morning, and worked until half-past seven at night. Saturdays we worked till four o'clock in the afternoon. The looms hadn't used to work as fast then as they do now, and there was no steaming the sheds. The first pair of looms that I had was by the side of my father's, and I earned somewhere about 8s. or 9s. per week."

In 1841 the family removed to Hyde, and it is with that town and district that Mr. Parrott has had the longest association.

"I well remember the cotton panic," continued Mr. Parrott. "I was working at Godley, and then we were stopped because we could get no cotton; in fact, all the mills were stopped. I played me two years, and we drew so much from the parish and so much from a fund at Hyde. Then some of us got a job at roadmaking. We made it a yard and a half thick with stone we got out of a quarry."

Asked if he had taken any part in trades union matters, Mr. Parrott replied that he belonged to the first Weavers' Union that was formed in Hyde, but took no part in its formation. For a time he worked on the railway between Manchester and Sheffield, but he preferred life in the mill, and returned to his old job of weaving. After working at mills at Broadbottom and Colne he went to Rochdale 16 years ago, and was put on a pair of sheeting looms at the Sparth Mill. There he remained very contentedly until the company gave up weaving. He is rather proud of the distinction of being the last operative to do any weaving in the shed, stating that the engine was run for some time especially for his benefit.

Asked generally as to whether conditions had altered much in mill life, Mr. Parrott replied that they had. "The looms are larger now and run very much faster. "Why," he said, "I remember my mother taking stockings to darn in the mill. She was a good darner, but never learned knitting. Then again in the old days they gave us better work, and there was no steaming. They used nothing but pure flour then, none of this china clay in it. Of course, when I started the mills were not like they are now; they were much smaller. Very few had more than 60 looms, and many of the looms were worked either in cellars or upper rooms. Although weavers worked longer hours then than now, they didn't complain as much of being tired, but the bad work and steaming nowadays make a lot of difference."

Mr. Parrott, in addition to earning 8s. or 9s. per week "when he works a full week, which isn't often," as he puts it, is in receipt of the old age pension. He is still hale and hearty. He is quite contented with his lot so long as he can earn a bit of money on the looms, for the old age pension, he declared, would not keep him. He still retains a sturdy independence, as is shown by the fact that he is working to keep himself in lodgings, although a son at Broadbottom is quite willing to have him at his home. As the old gentleman said, "I've always earned my own. There's nobody kept me since I began working," and apparently he intends to retain that independence to the end.—The Cotton Factory Times.

BRADFORD SOLUBLE GREASE

A softener prepared by The Arabol Mfg. Co., New York, especially for the finishing of cotton fabrics, both colored and white, is called Bradford soluble grease. It is neutral and by its use the softness can be graded to any point desired.

FIRES WITHOUT DAMAGE

Among the numerous cotton mill fires which are put out so promptly by automatic sprinklers as to do away with damage and claim for insurance, two recent ones in Greenville, S. C., and Greenwood, S. C., might be mentioned. The former occurred in the dust room of a spinning company and was put out so promptly by four Grinnell automatic sprinklers and with such a slight loss as to occasion no claim for damages. A second fire occurred in a picker trunk and was immediately put out by the opening of one sprinkler head.

The Amoskeag Mfg. Co., Manchester, N. H., is adding to the electrical drive equipment in its mills ten large 2200 volt induction motors, one of 150 h. p. and nine each of 200 h. p. capacity, and also ten panels for controlling the same. This apparatus has been ordered from the General Electric Company.

Recent Textile Patents

BLEACHING PROCESS. 1,032,151. Eugene L. Maupal, New York.

BRAIDING MACHINE. 1,032,870. Simon W. Wardwell, Providence, R. I.

DRYING MACHINE, Wool and Other Fiber. 1,032,713. Arthur Sowden, Shipley, Eng.

ELASTIC FABRIC. 1,030,893. Waldemar Kops, New York.

FABRICS, Machine for Turning Tubular. 1,030,336. Harry A. Shields, Grand Rapids, Mich.

KNITTING MACHINES. Stop Motion for Circular. 1,031,860. Hugh McCrudden, Cohoes, N. Y.

KNITTING NEEDLE, Latch. 1,032,613. Augustus Korndoerfer, Jr., Philadelphia, Pa.

KNITTED TRIMMING. 1,030,996. Samuel N. Goodman, Philadelphia, Pa.

LOOM, Automatic Weft-Replenishing. 1,032,463. Horace Wyman, Worcester, Mass.

LOOM, Leno or Cross Weaving. 1,031,733. Frank B. Ricketson, Pawtucket, R. I.

LOOM, Swivel. 1,030,928. Meyer Semoff, New York.

LOOM, Weft Replenishing. 1,030,748. Eppa H. Ryon, Waltham, Mass.

LOOM SHUTTLE. 1,031,690. Joseph A. Claus, Lowell, Mass.

LOOMS, Batten Structure for Narrow-Ware. 1,032,321. Frederick Benz, Jr., Haledon, N. J.

LOOM WARP Stop Motion. 1,031,237. Howard W. Bracken, Hopedale, Mass.

LOOMS, Reed and Beating-Up Mechanism for. 1,030,575. Robert Farnsworth, Bolton, Eng.

LOOMS, Batten Structure for Narrow-Ware. 1,032,396. Joseph Frank, New York.

LOOM WARP Stop Motion. 1,032,542. Henry I. Harriman, Hyde Park, Mass.

SPINNING MACHINE. 1,031,464. Durell O. Pease, Hampden, Mass.

STITCHES, Forming Chain. 1,030,813. Charles P. Holmes, Lynn, Mass.

SPINNING MACHINES, Separator for Ring. 1,031,265. Alfred Hitchon, Clayton-le-Dale, Eng.

SPINNING RING. 1,032,077. James A. Morse, Newton, Mass.

SPINNING, Cotton. 1,031,871. Arthur J. Richards and Peter J. Hinds, Holyoke, Mass.

SPINNING RING Holder. 1,031,086. George L. Pierce, Manchester, N. H.

SPOOL or Bobbin Winding Machine. 1,031,213. Edward Wackerhagen, Fort Lee, N. J.

SPINNING, Doubling and Twisting Machine. 1,030,395. Sebastian Ziani de Ferranti, England.

THREAD and Forming Same. 1,031,614. Joshua D. Armitage, New York.

THREAD, Lustrous. 1,031,616. Paul Benrath, Mulheim, Germany.

WINDING MACHINE, Cloth-Roll. 1,032,799. Abraham L. Adams, Bridgeport, Conn.

RECENT TEXTILE TRADE MARKS REGISTERED

58,370. Cotton, linen, wool and silk piece goods. Mark: Tootal's. Owner: Thomas A. Harris, Brooklyn, N. Y.

59,075. Textile underwear. Mark: Justo. Owner: The Dielhenn Mfg. Co., Massillon, O.

62,587. Ribbons. Mark: Olive Branch. Owner: Miesch Mfg. Co., Paterson, N. J.

63,260. Cotton, mohair and linen velts. Mark: Candaco. Owner: Collins & Aikman, Philadelphia, Pa.

63,679. Hosiery. Mark: Pointex. Owner: Lord & Taylor, New York.

63,683. Flannel goods in the piece. Mark: Fleet Foot. Owner: Clarence Whitman & Co., New York.

61,419. Ladies' dress and shirt waists. Mark: Bijou. Owner: Krohnberg & Krohnberg, New York.

63,339. Cotton goods in the piece. Mark: Lortex. Owner: Lortex Co., New York.

63,359. Corduroy and velvet piece goods. Mark: Rudamal. Owner: N. Erlanger, Blumgart & Co., New York.

63,514. Hosiery. Mark: Trosu. Owner: E. Sutro & Son Co., Philadelphia, Pa.

62,647. Mercerized silk. Mark: Planto-Silk. Owner: Malloch Knitting Co., Grand Rapids, Mich.

63,224. Hosiery. Mark: Tarheel. Owner: Orion Knitting Mills, Kinston, N. C.

63,744. Handkerchiefs. Mark: Good Luck. Owner: Heller & Long, New York.

56,873. Cotton piece goods. Mark: White Rose. Owner: Nathan & Greet Co., New York.

63,610. Piece goods. Mark: Bontex Wash Fabrics. Owner: The H. B. Claflin Co., New York.

63,678. Napped flannel in the piece. Mark: Progressive. Owner: Pemberton Co., Lawrence, Mass.

63,935. Hosiery, knit underwear and sweaters. Mark: Monito. Owner: Moorhead Knitting Co., Harrisburg, Pa.

Pennsylvania, Philadelphia. The Brown Knitting Co. is about to add to its power equipment a 185 k. v.-a. generator, which will be supplied and installed by the General Electric Company.